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FROM THE EDITOR
DAVID R. PARKER

The work of creating and sustaining universally accessible postsecondary environments is very much concerned with perceptions. For example, transition research often explores how freshmen with disabilities come to perceive a need to work with a Disability Services office. Another line of research focuses on the perceptions of faculty as they seek to develop more effective ways to meet the needs of diverse learners, including those with disabilities. Every few years, an emerging population invites us to re-examine our perceptions about the important construct of “otherwise qualified.” Students with Aspergers and those with intellectual disabilities serve as recent examples. This year has presented us with the need to reflect on our perceptions about documentation: what is needed to make accommodations decisions and how can students play a more self-determined role in this process? The articles in this Winter 2012 issue offer thought-provoking findings, practices, and perspectives on some of the myriad perceptions that shape our work.

At a time of significant change in recommended documentation practices, Shaw shares his seasoned perspective on disability service providers’ professionalism. He reminds us that change is a given in the ongoing effort to promote equal access and describes proactive strategies that campus professionals can use to adopt new approaches to documentation guidelines and practices.

de Vries and Schmitt report their study of disability service providers’ perceptions about the usefulness of a model Summary of Performance (SOP). With data from nearly 300 DS professionals, the authors analyzed participants’ feelings about using this new type of documentation that is created when students leave high school. Their findings provide a timely perspective on trends in the field and enrich our understanding of the potential utility of a well-written SOP.

In their study across 17 universities in South Korea, Kim, Son, and Vance investigated students’ perceptions about information technology (IT). The authors studied students’ training needs and how these were linked to their career-related goals. In this study, students’ type and severity of disability were found to influence their perceptions of the relevance of IT training.

Baker, Boland, and Nowik sought a better understanding of faculty and student perceptions about welcoming classroom environments at a small, private women’s college. Interestingly, they found that faculty rated the classroom environment as more welcoming than did students. While faculty expressed a willingness to provide accommodations and offer support, students expressed concerns about disclosing and utilizing these forms of access.

Online learning is a rapidly growing dimension of higher education. Given this trend, Phillips, Terras, Swinney, and Schneweis sought a current understanding of faculty members’ perceptions about providing accommodations in online courses. While nearly one-fourth of their participants had provided online accommodations, instructors reported many questions about doing so. This study concludes with practical implications for faculty development and the consulting role DS providers can play with instructors and students.

Faculty mentors can play a central role in students’ understanding of their disability. Mytkowicz and Goss conducted a qualitative study with 14 undergraduates with LD and/or ADHD. They explored the influence of “metacognitive conversations” - ongoing dialogues between students and faculty mentors – on students’ self-authorship and self-determination. Read more about students’ perceptions of the relationship between their personal growth and academic success.

Peer mentors are central to the implementation of Peer Lead Team Learning (PLTL), a national program that promotes greater academic achievement in science, technology, engineering, and math (STEM) courses. Street, Koff, Fields, Kuehne, Handlin, Getty, and Parker taught peer mentors about Universal Design for Instruction and studied the ensuing impact on chemistry and calculus PLTL groups for students with LD and/or ADHD. Special thanks to Guest Editor Dr. Jim Martin for conducting all stages of this article’s review process.
Finally, Park, Roberts, and Stodden contribute a very thoughtful practice brief about one component of their summer workshop designed to promote faculty members’ attitudes, knowledge, and skills in meeting the needs of diverse learners. Read more about how they implemented the professional development program and its impact on participants.

May the holiday season provide you with time to relax, celebrate, and engage in some meaningful reading experiences.
Disability Documentation: Using All the Data

Stan F. Shaw
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Abstract

Approaches to disability documentation have long been grounds for contention among postsecondary disability service providers. While the new AHEAD Documentation Guidance seems to be creating the usual intensity and heat among its members, there does seem to be a data-based middle ground. The AHEAD Guidance recommends that disability service providers place a greater emphasis on students’ history of accommodation use. This history can be established with an array of secondary school data, including the Summary of Performance (SOP). Research by de Vries and Schmitt (2012) demonstrates that AHEAD members find a comprehensive SOP to be very useful. Recommendations for using high school data to support documentation and accommodations decisions are made and approaches for enhancing the quality of data from secondary schools are presented.

Keywords: Disability documentation, summary of performance (SOP), AHEAD guidance

The de Vries and Schmitt article (2012), in this issue of JPED, on the perceived utility of the Summary of Performance (SOP) in postsecondary education found that most participants (i.e., AHEAD members who are disability service [DS] providers) rated the sections of the Model Summary of Performance (Dukes, Shaw, & Madaus, 2007) “very useful” to “extremely useful” for making accommodations decisions. Furthermore, the authors note that regardless of degree, discipline or field of study, source of disability training, or postsecondary disability experience, postsecondary disability personnel perceived the SOP to be very useful if the document was comprehensive in nature. In short, this study provides evidence that postsecondary personnel value comprehensive SOPs as a productive tool for determining accommodations for postsecondary students seeking supports from the Office for Students with Disabilities. Why then does postsecondary disability documentation continue to be a point of contention?

Disability Documentation: A Developmental Process

Services for students with disabilities have evolved through a developmental process over the last century. Initially, the field of special education was non-existent as students with disabilities were denied an education. States that did serve students with disabilities in the first half of the twentieth century often provided custodial care in segregated settings. The passage of the Education of All Handicapped Children Act of 1975 (now the Individuals with Disabilities Education Act; IDEA) guaranteed a free, appropriate education in the least restrictive environment to all students with disabilities for the first time. Classes for students with disabilities began at the elementary level and over time were expanded to middle school and high school. As new populations of students were identified (e.g., those with learning disabilities or autism), services were created to meet their needs. Gradually, the provision of educational services moved from separate schools to separate classrooms to resource rooms, followed by a series of attempts to integrate students with disabilities into regular classrooms (Florian, 2007). The point is that for almost a century legislators, parents, judges, and professionals have had to address legal, educational, cultural, and psychological barriers to equal access (Brinckerhoff, McGuire, & Shaw, 2002). We need to consider the issue of disability documentation in a similarly developmental context when thinking about changes that have occurred over the past three decades.

In the 1980’s most identified college students with disabilities had physical or sensory limitations that were both apparent and relatively straightforward to
accommodate. As more students with hidden disabilities began requesting accommodations and services in that decade, conflicts about documentation arose. On one hand, many wanted to serve all the students who presented themselves as students with disabilities while others felt a need to ensure that only students with “documented” disabilities received services (Madaus & Shaw, 2006). In addition to these areas of disagreement between postsecondary service providers, there were also conflicts among secondary personnel, leaders of testing agencies, and representatives of postsecondary education. A report by the National Joint Commission on Learning Disabilities (2007) noted “disconnects” such as lack of consistency between documentation practices across postsecondary institutions, differing laws impacting how disabilities were diagnosed in secondary vs. postsecondary settings, and how accommodations decisions varied among postsecondary personnel with varying qualifications.

These conflicts are exemplified by the AHEAD “Guidelines for Documentation LD in Adolescents and Adults” (1997) and the “Guidelines for Documentation of ADHD” (1998) developed by a consortium of professionals. Among the issues that have been debated into the twenty-first century were the use of the learning disability discrepancy formula; the qualifications of the evaluator; and the quality, detail, contents, and recency of evaluation data. As noted more than a decade ago, “Policy is not a static commodity. It is a dynamic road map that periodically should be reviewed within the context of legal precedents, evolving developments in the field, and emerging ‘best practices’” (Brinckerhoff, et al., 2002, p. 248).

The new Guidance (Association on Higher Education And Disability [AHEAD], 2012), revised ADA Amendments Act of 2008 (ADAAA), and improved performance data being provided by high schools are driving new approaches to documentation that require changes now in postsecondary DS practices. Specifically, AHEAD’s Guidance identifies student self-report as the primary level of documentation, evaluating the effectiveness of previously implemented accommodations as secondary documentation, and external or third party reports (e.g., assessments, Individualized Education Plan [IEP], SOP’s) being the tertiary level of documentation. Disability services personnel are now being asked to use their professional expertise to analyze the utility of high school documentation data in a way the field has not done before. This new direction relates to previous upgrades in our profession. The AHEAD Professional Standards (Shaw, McGuire & Madaus, 1997) called for disability personnel to determine program eligibility for services based upon documentation of a disability. Similarly, the Program Standards (Shaw & Dukes, 2006) called for programs to develop procedures regarding student eligibility for services and documentation review. So, rather than oppose new information that often requires us to develop new policies, engage in staff development, and explain new procedures to students, parents, administrators and staff, we need to accept change as part of the developmental process inherent in our professional role.

Disability Documentation and the Rule of Law

Disability documentation has been impacted significantly by legislation and judicial decisions. As postsecondary personnel, we focus on Section 504 of the Rehabilitation Act of 1973, Subpart E that gave us our mandate and the Americans with Disabilities Act of 1990 (ADA) that provided direction for our services (Keenan & Shaw, 2011). Students with disabilities typically arrive at postsecondary institutions with a diagnosis and years of assessment data, services, and accommodations throughout their K-12 experience as well as IDEA-mandated educational components such as an IEP and SOP (Shaw, 2006).

The ADA has undergone its own makeover as Supreme Court decisions in the Sutton v. United Air Lines (1999) and Toyota v. Williams (2002) cases narrowed the scope of eligibility under the law. The passage of the ADAAA (2008) rejected the outcomes of those cases and instead reinforced that the protections of the ADA were to be defined broadly, so as to make it easier for individuals with disabilities to obtain their rights under the law (Shaw, Dukes & Madaus, 2012). The recently published conceptual framework, “Supporting Accommodations Requests: Guidance on Documentation Practices” (AHEAD, 2012) summarizes the balance sought by the ADAAA:

The regulations acknowledge that postsecondary institutions may request a reasonable level of documentation. However, requiring extensive medical and scientific evidence perpetuates a deviance model of disability, undervalues the individual’s history and experience with disability and is inappropriate and burdensome under the revised statute and regulations (p. 1).
It is important to understand that coping with change is challenging while recalling that our field has done so successfully many times in its relatively brief existence.

Discussion

Managing Change

While our focus is undeniably on the students we see each day, we have our own personal biases and styles. Our training and experience, as well as the culture of our institutions and programs, have led us to operate in certain ways. Nevertheless, as professionals, change is assured, especially in the relatively young field of postsecondary DS where changing laws, court decisions, emerging populations, and new research create a dynamic of change. We can ignore or stop this reality with as much success as we can stop a large wave as it approaches the shore. The more effective approach is to accept that change is an inevitable part of our profession that should be embraced as an opportunity for learning and renewal. Not incidentally, it makes each of us valuable members of our institution who keep campus-based colleagues abreast of these changes to assure that state-of-the-art access and services are being provided. How does this dynamic relate to disability documentation? The availability of the SOP, the de Vries and Schmitt data, and new AHEAD Documentation Guidance provide an opportunity to enhance our services and policies without undermining our beliefs or requiring us to develop completely new documentation procedures.

Using All the Data

The AHEAD Guidance (2012), like the ADAAA (2008), indicates that we need to focus less on the gatekeeper function of documentation review and instead use a broad range of information to identify functional limitations and appropriate accommodations. Madaus, Shaw, Miller, Banerjee and Vitello (2011) inform us that many states have comprehensive SOP’s that include copies of previous evaluations that have formed the basis for disability determinations and the provision of accommodations in high school. De Vries and Schmitt (2012) demonstrate that postsecondary disability personnel now find comprehensive SOP’s to be useful in the documentation review and accommodations process at the postsecondary level.

In other words, in spite of initial discomfort with SOP’s, recent changes have made a broader array of data helpful in the disability documentation process. Information such as transition goals, a history of functional limitations, and use and effectiveness of accommodations can help us make accommodation determinations at the postsecondary level (Shaw, Keenan, Madaus & Banerjee, 2010). The new AHEAD Guidance, however, does not limit us to the data noted above. The Guidance simply – but importantly – sanctions our use of these additional bullets in our arsenal of documentation instrumentation. As needed, we can make the determination to request and review additional data. The maxim of Occam’s razor, however, suggests that we should strive to look for the fewest possible causes that will account for a student’s symptoms or behavior. Starting with the recent historical data about a student’s need for accommodations before seeking more current, intrusive, or costly data would seem to be a reasonable approach.

Cautions and Caveats

The de Vries and Schmitt article (2012) provides data to support the efficacy and utility of a carefully conceived and comprehensive SOP. In fact, the SOP they used was developed by personnel who were part of the leadership of the National Transition Assessment Summit (2005) that created the model SOP template. Many SOP’s that are received by postsecondary disability personnel, however, are far less detailed than the model template or may not be completed in a way that is as specific and informative as the one used by de Vries and Schmitt (Madaus, Bigaj, Chafouleas, & Simonsen, 2006). It is inevitable that postsecondary disability personnel may receive brief or poorly conceived SOP’s of limited utility in the documentation and accommodations process. When this happens, DS professionals are encouraged to consider the following proactive approaches to enhance the utility of SOP’s in combination with other documentation over time.

Even though newer forms of documentation have promise, they often are not yet as effectively developed as they could be. Since grumbling about the unhelpful information or criticizing secondary personnel would not be productive, DS professionals are encouraged to work with their regional/state AHEAD affiliate to lobby the State Department of Education for revised policies that could promote the comprehensively-developed Model SOP studied by de Vries and Schmitt (2012). Similarly, collaboration with area or feeder school districts can result in improved documentation
data. Parents and advocacy groups have demonstrated political clout in supporting services for students with disabilities for many decades. Seeking out this constituency at the local or state level (e.g., Learning Disabilities Association of America, Autism Speaks, Parent Advocacy Center) can be very helpful to foster development of useful IEP’s, SOP’s and accommodations records in high school.

To impact policy at the national level, AHEAD could form a task force to work with a coalition of organizations whose mission is to foster transition from secondary to postsecondary environments. This coalition could include State Transition Coordinators, the federally funded National Secondary Transition Technical Assistance Center (NSTTAC), and the Council for Exceptional Children’s Division on Career Development and Transition (DCDT). These organizations could be informed about the de Vries and Schmitt data and the new AHEAD Guidance indicating postsecondary education’s interest in high quality secondary transition data. Personnel from these organizations worked with AHEAD in the National Transition Assessment Summit (2005) to create the model SOP. This history of collaboration suggests a considerable likelihood that these organizations would be willing partners with AHEAD in this new effort.

The AHEAD Guidance (2012) also identifies the IEP as a potential source of information in the documentation and accommodations process. Although IEP’s have been getting better in recent years, many have limitations that often make them less useful than the SOP. The major difference between these two documents is that the IEP is prospective (i.e., this is what we want to happen over the next year), while the SOP is an historical document describing what happened over the previous four years. Therefore, the SOP reports on actual accommodations used and whether or not they were effective. Once again, it is the responsibility of postsecondary disability personnel to assess the efficacy of all sources of information when reviewing students’ documentation and requests for accommodations.

Another source of data, generally referred to in the AHEAD Guidance as student’s educational and accommodations history, may provide very useful information for postsecondary personnel. An evidence-based practice called Schoolwide Positive Behavior Supports (SWPBS) is a systematic approach for improving social competence and academic achievement. Increasing numbers of high schools utilize SWPBS to implement Positive Behavior Supports (PBS) interventions to enhance social competence and Response to Intervention (RTI) for learning problems. Typical approaches might include training in learning strategies to address memory problems or teaching self-monitoring strategies for a student with Asperger’s Syndrome (Shaw, Madaus & Dukes, 2010). These approaches provide data-based results on the efficacy of supports and accommodations that have been used to overcome academic and social problems. SWPBS typically provide well-documented teacher report data on what worked and what functional limitations and strengths resulted from the intervention. The use of this information is highly encouraged.

If DS professionals accept or even embrace the recommendation to become an agent of change, there are many steps that can be taken to adjust to the challenges endemic to new circumstances and expectations. An obvious first step is to develop a complete understanding of the changes that have occurred. While the ADAAA (2008) provided the impetus for change, making time to seek the insight of legal and policy experts regarding the implications of the law and carefully reviewing new professional guidance can help you identify practical applications for your institution. Peer-reviewed publications such as the Journal of Postsecondary Education and Disability provide policy direction and current research to inform practice (e.g., de Vries & Schmitt, 2012; Madaus et al., 2011). These steps can assist with making informed changes to policies and practices.

**Conclusion**

Although dealing with change is always challenging, divergent approaches to disability documentation have particularly bedeviled postsecondary DS for decades. Although the SOP was not at all welcomed when it was first presented to AHEAD members (Shaw & Parker, July, 2006), the de Vries and Schmitt research now indicates a significant acceptance of the utility of the comprehensive data that can be reported in this document. While reaction to the AHEAD Documentation Guidance (2012) has cast a new light on the disparate “camps” regarding the amount and type of documentation campuses should request, there is a productive professional stance that postsecondary disability personnel can take to move beyond these
differences to more effectively serve students with disabilities. A three-phased approach to determining accommodations is recommended:

1. Use all available data (including documents that reflect education and accommodation history such as the SOP);
2. If those data are not comprehensive, conclusive or sufficient, review successive levels of documentation until the student’s functional limitations and need for accommodation are clear; and
3. Work collaboratively with secondary personnel, State Departments of Education, parent groups and secondary transition agencies to improve the quality of SOP’s, IEP’s and teacher report data over time.

References


Brinckerhoff, L., McGuire, J, & Shaw, S. (2002). Postsecondary education and transition for students with learning disabilities (2nd ed.). Austin, TX: PRO ED.


**About the Author**

Stan Shaw received his MA degree from the University of Northern Colorado and Ed.D. in Special Education from the University of Oregon. His experience includes four decades as professor of special education at the University of Connecticut (UConn) where he was coordinator of the special education program. He is currently Senior Research Scholar at the Center on Postsecondary Education and Disability in the Neag School of Education at UConn. His research interests include transition to postsecondary education and disability policy and law. He can be reached by email at: stan.shaw@gmail.com.
Postsecondary Disability Service Providers’ Perceived Usefulness of a Model Summary of Performance

Rebecca S. de Vries
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Abstract
This study investigated postsecondary disability service providers’ perceived usefulness of a Model Summary of Performance that was constructed for a student with a language-based learning disability. The 298 participants were asked to consider the content within the (a) student’s test scores, (b) rationale for accommodations, (c) history and/or use of accommodations, (d) report writer’s recommendations, and (e) student input sections of a Model Summary of Performance, and then to rate each section regarding the perceived usefulness of the information for making accommodation decisions. Analysis of variance was used to determine if the perceived usefulness of each section varied as a function of the disability service providers’ (a) highest degree earned, (b) discipline or field of study, (c) source of training for the interpretation of disability documentation, and (d) years of experience in postsecondary disability services. Overall, regardless of status within each group, disability service providers rated each part of the Model Summary of Performance as at least very useful. One significant group difference was discovered as disability service providers with less than five years experience perceived the report writer’s recommendations to be more useful than those with greater than 10 years of experience. Limitations and implications of the present study, as well as areas for future research, are discussed.

Keywords: Summary of performance, disability service providers

In 2004, the reauthorization of the Individuals with Disabilities Education Act ([IDEA] Federal Register, 2006) changed the purpose of documentation for students with disabilities from outcomes-oriented to results-oriented (Sitlington & Clark, 2007). As part of this philosophical shift, IDEA (2004) requires Local Educational Agencies (LEAs) to provide students with disabilities who exit secondary education due to graduation or exceeding the age of eligibility for services a summary of their academic achievement and functional performance, including recommendations to assist students in reaching their postsecondary goals. This transition document is referred to as a Summary of Performance (SOP) and must include a summary of academic achievement, a summary of functional performance, and recommendations for helping the student meet his or her post school goals (§300.305(e) (3)). Specific guidelines do not exist regarding what information should be included in a student’s SOP. Therefore, state educational agencies (SEAs) have independently developed forms and policies to guide school districts (Cortiella, 2007, p. 97).

Based upon a review of example SOP forms provided by the National Secondary Transition Technical Assistance Center (NSTTAC), the Nationally Ratified Summary of Performance Model Template is the most comprehensive. This template was developed by the National Transition Assessment Summit ([NTAS], 2005) over a two-year period and represents the collaborative efforts of secondary and postsecondary specialists, as well as representatives from numerous professional organizations. The Model SOP Template (SOP Template) prompts educators to include information regarding the student’s (a) general background; (b) postsecondary goals; (c) summary of academic performance (e.g., reading, math, written language and learning skills) as well as cognitive and functional skills; (d) recommendations to assist the student in meeting postsecondary goals; and (e) student input (National Joint Committee on Learning Disabilities [NJCLD], 2007).
One context in which SOPs can provide valuable transition information is when a student seeks educational accommodations at a college or university. In postsecondary educational environments, Disability Service Providers (DSPs) determine what accommodations are reasonable for students with disabilities on a case-by-case basis, based upon the “functional impact” of the student’s documented disability (Madaus, 2005; Wilhelm, 2003). For example, a DSP may determine that extended time to take exams is reasonable for a student with a learning disability, but that the functional impact of the same type of learning disability for another student does not qualify him or her for extended time. These judgments may be different among DSP professionals who have varying education, sources of training in disability services, and years of experience.

In a 2001 nationwide survey, DSPs reported an assortment of fields of study regarding their educational backgrounds. These disciplines included counseling/psychology (35.7%), education (28.9%), disability services (15.8%), vocational/adult (5.4%), and arts and science (14.2%; Whelley, Stodden, Harding, & Chang, 2001). In a similar survey, 23% of DSPs indicated that they had earned degrees in fields such as law, music, and reading (Dukes & Shaw, 2004). Similarly, the highest completed degrees of DSPs also differ. In a sample of personnel in disability services (n=485), 18% reported that they had earned a doctoral degree, 73% earned a master’s degree, 7% earned a bachelor’s degree, and 2% indicated that they had earned some other highest degree completed degree (Madaus, Banerjee, & McGuire, 2009). The DSPs in the same sample also indicated that they received training in interpreting disability documentation from conferences (65%) or an academic program (27%). Eight percent of the participants reported that they received no training at all (Madaus, Banerjee, & Hamblet, 2010). Furthermore, Madaus, Banerjee, and McGuire (2009) found that the majority of the DSPs reported more than 10 years of experience (59%), while 28% indicated having 5 to 10 years of experience, and 13% reported having less than five years of experience.

Differences in training and experience among DSPs are particularly relevant to explore because of the influence these factors may have upon the accommodation decisions they make. In particular, 53% of DSPs have reported that their “professional judgment” significantly impacts their conclusions regarding what postsecondary accommodations are reasonable (Gormley, Hughes, Block, & Lendman, 2005). The study’s findings reported that DSPs indicated that report writer’s recommendations, the rationale for previously provided accommodations, history of use or success of accommodations, test scores, and student input were also influential in their decision-making. The SOP Template includes each of these areas. Further investigation was necessary to explore if factors such as highest completed degree, field of study, source of training in disability services, or years of service impact a DSP’s professional judgment when making accommodation decisions.

The usefulness of an SOP for accommodation decisions depends on the quality of the SOP. A recent study reported that 21% of states have adopted the SOP Template and require its use (Shaw, Keenan, Madaus, & Banerjee, 2010), suggesting that it is an appropriate structure for a well-developed SOP for this study. In 2007, Dukes, Shaw, and Madaus used the SOP Template to create a Model SOP to guide those involved in the transitioning of secondary students, particularly to college. Dukes et al.’s Model SOP was developed for a student with a language-based learning disability (reading and written expression disorders) who is transitioning to college; the participants in this survey rate the usefulness of the parts of the Model SOP for making accommodation decisions (Dukes et al., 2007).

As language-based learning disorders account for 80% of learning disability diagnoses (Hudson, High, & Otaiba, 2007), the relevance of this study’s results is increased as the content of the Model SOP includes disability-related information commonly seen by DSPs in postsecondary settings.

The present study was designed to contribute to the disability services literature by exploring the extent to which DSPs, one group of intended consumers of the federally mandated SOP, perceived information gleaned from the (a) test scores, (b) rationale for accommodations, (c) history of or use of accommodations (d) SOP writer’s recommendations, and (e) student input sections of a Model SOP developed for a high school graduate with a language-based learning disability to be useful when making accommodation decisions. Another purpose of the study was to determine if DSPs’ professional characteristics were related to their perceptions of the usefulness of distinct sections of a Model SOP. To accomplish this goal, the present study explored if (a) highest degree completed,
(b) discipline or field of study, (c) source of training on the interpretation of disability documentation, and (d) years of experience in postsecondary were related to DSPs’ perceived usefulness of the test scores, rationale for previously used accommodations, history of or use of accommodations, SOP writer’s recommendations, and student input sections of the Model SOP for making accommodation decisions. We hypothesized that the perceived usefulness of each section would increase with more education, with a field of study that historically includes disability-related content, with the presence of academic training in the interpretation of disability documentation, and with more years of experience in postsecondary disability services.

**Method**

**Participants and Procedure**

In order to survey DSPs on a national level, members of the Association on Higher Education And Disability (AHEAD) were directly emailed by the office of AHEAD’s Executive Director on behalf of the researchers. An internet link was provided within a recruitment email for members who were interested in learning more about participating in this study. Three recruitment emails were used to obtain participants in the United States. The nature of the study, confidentiality assurances, and informed consent procedures were explained before participants gained access to the electronic survey. After providing informed consent, potential participants were then asked to affirm that they worked directly with students with disabilities at a postsecondary institution in the U.S. A response of “no” exited the respondent from the survey and a response of “yes” granted access to the survey. The actual survey was administered and data were collected through the technology services of AHEAD. The raw data were stored by AHEAD within a secure, password-protected computer database accessible only to the technology service personnel. At the conclusion of data collection, de-identified data were provided to the investigators in spreadsheet format.

Prior to proceeding to analyses, the demographic characteristics of the respondents were examined to determine if each respondent could be appropriately categorized under each independent variable and if each category contained enough participants to be included as a distinct group in statistical analyses. Regarding the independent variable highest degree earned, two participants selected “associates degree” and three participants indicated “other.” These participants were omitted from the study. With respect to the independent variable discipline or field of study, only four participants selected “vocational/adult” as the focus of their educational program. Rather than omit these participants, they were combined with the “counseling/psychology” category, as these fields are also helping professions whose training programs commonly include vocation-related content. The “counseling/psychology” category was then renamed “mental health/vocational.” Ten participants selected “other” in response to their discipline or field of study. Because the “other” category included an open space on the survey to specify a field of study, these narrative responses could be examined to determine if they could be included in other categories within discipline or field of study variable. For example, open-ended responses such as “social work” were included in the “mental health/vocational” category and “special education” were included in the “education” category. Finally, seven respondents indicated “no training” in response to the question eliciting their previous training in interpreting disability documentation. These respondents were omitted from analyses because a group of seven participants is statistically insufficient to compare to the other categories under the level of training variable.

In cooperation with AHEAD, DSPs across the country examined the effectiveness of the Model SOP for determining accommodations for a student identified with a specific learning disability. Almost 300 DSPs completed the survey and, overall, the DSPs thought the SOP was very useful to extremely useful. The response rate for this study cannot be precisely calculated as it is unknown exactly how many of the 2,459 AHEAD members with known email addresses at the time of the survey literally received and read the recruitment email or how many DSPs failed to meet inclusionary criteria (e.g., did not work in a postsecondary setting in the U.S). From the available information, the best approximation of total membership of DSPs who participated in this study is 12%. Table 1 and Table 2 provide information regarding the institutional affiliations and professional characteristics of the study’s participants. Most of the participants were employed at research institutions (38.3%) or public institutions (66.1%) and were employed at colleges or universities with over 10,000 students enrolled (53.4%). The
geographical area of participants was fairly evenly distributed among the midwest (29.2%), northeast (26.5%), southeast (27.5%), and west (16.1%) of the United States. The majority of DSPs indicated that their highest degree earned was a master’s (74.1%). A relatively small difference exists between DSPs with counseling/psychology (38.9%) and education (34.6%) as their discipline or field of study. Nearly half of the DSPs reported that they obtained their training in reading disability documentation at their place of employment. Similarly, almost half of the DSPs have greater than 10 years of experience in postsecondary disability services.

Measures

Gormley et al. (2005) reported that test scores, the rationale for previously used accommodations, the history of use and success of the previously used accommodations, report writer’s recommendations, and student input are all influential when DSPs make accommodation decisions for students with disabilities. These factors may also appear in the SOP document required under IDEA for exiting high school students with a disability. Dukes et al. (2007) developed a Model SOP based upon the SOP Template for a high school graduate with a language-based learning disability transitioning to postsecondary education to guide educators as to what type of information would be helpful to include in a SOP. This Model SOP includes headings and detailed information regarding the (a) student’s test scores, (b) rationale for accommodations, (c) history, and/or use of accommodations, (d) report writer’s recommendations, and (e) the student’s input.

The SOP Usefulness Survey used in this study included the complete Model SOP published by Dukes et al. (2007) with the authors’ permission. The Model SOP was revised to reflect test score information regarding the Wechsler Intelligence Scale for Children – IV (Wechsler, 2003). Participants were asked to provide a rating of their perceived usefulness of the information obtained from each of the five aforementioned sections when making accommodation decisions in the postsecondary education setting. To complete this rating, participants used the following five point Likert scale: (1) extremely useful, (2) very useful, (3) somewhat useful, (4) a little useful, and (5) not useful. When interpreting the findings of this study, the reader is reminded that a lower total score corresponds to lower perceived usefulness and a higher score corresponds to lower perceived usefulness. At the beginning of the survey, participants were asked to respond to 10 demographic questions such as the DSPs’ discipline or field of study, highest degree completed, training on the interpretation of disability documentation, years of experience in postsecondary disability services, and characteristics about the institution at which they are employed.

Independent and Dependent Variables

The quasi-experimental design included four independent variables with multiple (nominal data) levels of each independent variable. First, participants were asked to report their highest degree completed: (a) doctorate, (b) masters, (c) bachelors, (d) associates, or (e) other. Second, participants were asked to provide their discipline or field of study: (a) counseling/psychology, (b) education, (c) related disability services, (d) arts and sciences, (e) vocational/adult, or (e) other. Third, participants were asked to report where they had received most of their training for the interpretation of disability documentation: (a) academic program, (b) conferences, workshops, symposia, (c) place of employment, or (d) no training. Finally, participants were asked to provide their number of years of experience in postsecondary disability services: (a) greater than 10 years, (b) 5 to 10 years, or (c) less than five years. The five dependent variables of this study are the ratings by DSPs of the perceived usefulness of the sections of the Model SOP: (a) student’s test scores, (b) the rationale for accommodations, (c) the history, and/or use of accommodations, (d) the report writer’s recommendations, and (e) the student input.

Results

The primary statistical procedure used in this study was analysis of variance (ANOVA). The statistical assumptions of independence, normality, and homogeneity of variance that are associated with ANOVA were tested prior to the analysis of each research question (Pallant, 2007). Homogeneity of variance was verified using Levene’s test of equality of error variance and independence of responses were satisfied given the survey procedure implemented. With respect to normality of the data, the responses of the participants were skewed. That is, most participants rated the perceived usefulness of the sections of the Model SOP to be at least very useful to extremely useful, compared to
Table 1

**Institutional Characteristics of Participants**

<table>
<thead>
<tr>
<th>Institution Demographics</th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of institution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research</td>
<td>114</td>
<td>38.3</td>
</tr>
<tr>
<td>Comprehensive</td>
<td>47</td>
<td>15.8</td>
</tr>
<tr>
<td>Baccalaurete</td>
<td>40</td>
<td>13.4</td>
</tr>
<tr>
<td>Two-year</td>
<td>77</td>
<td>25.8</td>
</tr>
<tr>
<td>Vocational</td>
<td>3</td>
<td>1.0</td>
</tr>
<tr>
<td>Control of the institution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private</td>
<td>98</td>
<td>32.9</td>
</tr>
<tr>
<td>Public</td>
<td>197</td>
<td>66.1</td>
</tr>
<tr>
<td>Enrollment at the institution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fewer than 500 students</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>500 - 1,999 students</td>
<td>41</td>
<td>13.8</td>
</tr>
<tr>
<td>2,000 - 4,999 students</td>
<td>54</td>
<td>18.1</td>
</tr>
<tr>
<td>5,000 - 9,999 students</td>
<td>42</td>
<td>14.1</td>
</tr>
<tr>
<td>At least 10,000 students</td>
<td>159</td>
<td>53.4</td>
</tr>
<tr>
<td>Geographical Area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midwestern region</td>
<td>87</td>
<td>29.2</td>
</tr>
<tr>
<td>Northeastern region</td>
<td>79</td>
<td>26.5</td>
</tr>
<tr>
<td>Southern region</td>
<td>82</td>
<td>27.5</td>
</tr>
<tr>
<td>Western region</td>
<td>48</td>
<td>16.1</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>0.3</td>
</tr>
</tbody>
</table>

*Note.* Vocational = technical, trade, vocational, and professional; Comparisons of total respondents varies slightly due to “no responses” to some questions.
somewhat useful or not useful at all. However, in studies such as this one where large sample sizes are used, it is permissible to proceed with analyses (Creators of Statistica Data Analysis Software and Services, 2011; Hunter & May, 2003; Sawilowski, 2011). Furthermore, previously published studies that surveyed AHEAD membership also contained a similarly skewed distribution of some data (Brinckerhoff, McGuire, & Shaw, 2002; Gormley et al., 2005; Harbour, 2008; Madaus, 2005; Madaus et al., 2009; Shaw, Madaus, & Dukes, 2009; Whelley, 2002; Whelley et al., 2001).

The first research question sought to discern if DSPs’ perceived usefulness of the test scores section of the Model SOP varied as a function of the DSPs’ (a) highest degree completed, (b) discipline or field of study, (c) training on the interpretation of disability documentation, and (d) years of experience in postsecondary disability services. In order to analyze this research question, as well as the other research questions, four distinct one-way ANOVAs were computed. To illustrate, highest degree completed was considered the independent variable with doctorate, master’s, and bachelor’s as the three levels of the independent variable. The dependent variable was the DSPs’ perceived usefulness of the test scores section. This ANOVA was not significant, $F(2, 285) = .20, p = .82, \eta^2 = .001$, indicating that DSPs’ perceived usefulness of the test scores section of the Model SOP did not vary as a function of highest degree earned. Next, discipline or field of study, with the levels of mental health/vocational, education, related disability services, and arts and sciences, was entered as the independent variable. This ANOVA was
also not significant, \( F(2, 288) = .53, p = .66, \eta^2 = .006 \). The final two ANOVAs for this research question were also insignificant. The perceived usefulness of the test scores section did not vary as a function of the source of the DSPs’ disability documentation training, \( F(2, 282) = .72, p = .49, \eta^2 = .005 \), or DSPs’ years of experience in postsecondary disability services, \( F(2, 289) = .88, p = .42, \eta^2 = .006 \). Table 3 displays perceived usefulness ratings of DSPs for each section of the Model SOP by independent variable.

To investigate if the perceived usefulness of information contained within the rationale of accommodations section of the Model SOP varied as a function of (a) highest degree completed, (b) discipline or field of study, (c) training on the interpretation of disability documentation, and (d) years of experience in postsecondary disability services, consistent with the analysis procedures above, four one-way ANOVAs were conducted. Each of the ANOVAs were insignificant: (a) highest degree completed, \( F(2, 285) = .68, p = .52, \eta^2 = .005 \); (b) discipline or field of study, \( F(3, 288) = 1.53, p = .21, \eta^2 = .016 \); (c) training on the interpretation of disability documentation, \( F(2, 282) = 1.18, p = .31, \eta^2 = .008 \); (d) years of experience in postsecondary disability services, \( F(2, 289) = 1.67, p = .19, \eta^2 = .011 \).

The third research question explored if the perceived usefulness of the history of use or success of accommodations section of the Model SOP varied as a function of the DSPs’ (a) highest degree completed, (b) discipline or field of study, (c) training on the interpretation of disability documentation, and (d) years of experience in postsecondary disability services. Perceived usefulness of this section did not vary as a function of any of the independent variables: (a) highest degree completed, \( F(2, 288) = 2.48, p = .09, \eta^2 = .017 \); (b) discipline or field of study, \( F(3, 291) = .94, p = .42, \eta^2 = .010 \); (c) training on the interpretation of disability documentation, \( F(2, 285) = .58, p = .56, \eta^2 = .004 \); (d) years of experience in postsecondary disability services, \( F(2, 292) = 1.83, p = .16, \eta^2 = .012 \). The ANOVA for the highest degree completed did approach statistical significance with more education being related to decrease perceived usefulness of this section (see Table 3).

Regarding research question 4, DSPs’ perceived usefulness of the report writer’s recommendations did not vary as a function of highest degree completed, \( F(2, 287) = .86, p = .42, \eta^2 = .006 \); (b) discipline or field of study, \( F(3, 290) = .05, p = .99, \eta^2 = .000 \); or (c) training on the interpretation of disability documentation, \( F(2, 284) = .31, p = .73, \eta^2 = .002 \). Perceived usefulness of the report writer’s recommendations did vary significantly as a function of years of experience in postsecondary disability services, \( F(2, 291) = 4.7, p = .01 \). Approximately 3% of the variance in perceived usefulness of the report writer’s recommendations could be explained by years of experience in postsecondary disability services (\( \eta^2 = .031 \)). However, this effect size value is less than the recommended minimum eta squared value of .04 that constitutes a practically significant difference, or a weak effect size (Ferguson, 2009). Post hoc comparisons using the Tukey HSD test indicated that the mean score for DSPs with greater than 10 years of experience (\( M = 2.24, SD = 1.02 \)) was significantly different from DSPs with fewer than five years of experience (\( M = 1.85, SD = .87 \)). The DSPs with 5-10 years of experience did not differ significantly from either of the other groups. This finding indicates that statistically, DSPs with less than five years of experience found the report writer’s recommendations more useful than DSPs with greater than 10 years of experience.

The last research question targeted the extent to which DSPs’ perceived usefulness of information included in the student input section of the Model SOP varied as a function of the DSPs’ professional characteristics. Perceived usefulness of this section did not vary as a function of (a) highest degree completed, \( F(2, 287) = .60, p = .55, \eta^2 = .004 \); (b) discipline or field of study, \( F(3, 290) = .65, p = .59, \eta^2 = .007 \); (c) training on the interpretation of disability documentation, \( F(2, 284) = .21, p = .81, \eta^2 = .001 \); or (d) years of experience in postsecondary disability services, \( F(2, 291) = 1.94, p = .15, \eta^2 = .013 \).

**Discussion**

Gormley et al. (2005) found that test scores, the rationale for previously used accommodations, the history of use and success of the previously used accommodations, report writer’s recommendations, and student input are influential when DSPs make accommodation decisions for students with disabilities. A Model SOP has been developed by Dukes et al. (2007) regarding a student with a language-based learning disability. The Model SOP includes headings and detailed information regarding test scores, the rationale for accommodations, history of use of and
Table 3

**Descriptive and Effect Size Statistics Regarding Dependent Variables by Level of Independent Variable**

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>$\eta^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Perceived usefulness of test scores</strong></td>
<td></td>
<td></td>
<td></td>
<td>0.001</td>
</tr>
<tr>
<td>Highest degree completed</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Doctorate degree</td>
<td>45</td>
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<tr>
<td>Master’s degree</td>
<td>220</td>
<td>1.79</td>
<td>0.91</td>
<td></td>
</tr>
<tr>
<td>Bachelor’s degree</td>
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<td>0.95</td>
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</tr>
<tr>
<td>Total</td>
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</tr>
<tr>
<td><strong>Discipline or field of study</strong></td>
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<td></td>
<td></td>
<td>0.006</td>
</tr>
<tr>
<td>Counseling/psychology</td>
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<td></td>
</tr>
<tr>
<td>Education</td>
<td>99</td>
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<td></td>
</tr>
<tr>
<td>Related disability services</td>
<td>28</td>
<td>1.96</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Arts and sciences</td>
<td>49</td>
<td>1.86</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>292</td>
<td>1.79</td>
<td>0.90</td>
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<tr>
<td><strong>Disability documentation training</strong></td>
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<td></td>
<td>0.005</td>
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<tr>
<td>Academic program</td>
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<td>1.69</td>
<td>0.76</td>
<td></td>
</tr>
<tr>
<td>Conferences, workshops, symposia</td>
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<tr>
<td>Place of employment</td>
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<tr>
<td>Total</td>
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<tr>
<td><strong>Postsecondary disability experience</strong></td>
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<tr>
<td>Greater than 10 years</td>
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<tr>
<td>5 - 10 years</td>
<td>68</td>
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<tr>
<td>Less than 5 years</td>
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<tr>
<td>Total</td>
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<td>0.90</td>
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</tr>
<tr>
<td><strong>Perceived usefulness of rationale for accommodation</strong></td>
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<td>Highest degree completed</td>
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<tr>
<td>Total</td>
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<td>1.76</td>
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<td><strong>Discipline or field of study</strong></td>
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<td>Education</td>
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<td>1.73</td>
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<td>Arts and sciences</td>
<td>49</td>
<td>1.57</td>
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<tr>
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<td>292</td>
<td>1.76</td>
<td>0.81</td>
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<tr>
<td>Variables</td>
<td>$N$</td>
<td>$M$</td>
<td>$SD$</td>
<td>$\eta^2$</td>
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<td>------------------------------------------------</td>
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<td>Disability documentation training</td>
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<td>Academic program</td>
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<td>1.89</td>
<td>0.80</td>
<td></td>
</tr>
<tr>
<td>Conferences, programs, symposia</td>
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<td>1.79</td>
<td>0.77</td>
<td></td>
</tr>
<tr>
<td>Place of employment</td>
<td>143</td>
<td>1.71</td>
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<tr>
<td>Total</td>
<td>285</td>
<td>1.77</td>
<td>0.82</td>
<td></td>
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<tr>
<td>Postsecondary disability experience</td>
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<td></td>
</tr>
<tr>
<td>Greater than 10 years</td>
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<tr>
<td>5 - 10 years</td>
<td>70</td>
<td>1.80</td>
<td>0.89</td>
<td></td>
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<tr>
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*Note. Scores are based on the following five point Likert scale: 1 = extremely useful, 2 = very useful, 3 = somewhat useful, 4 = a little useful, 5 = not useful. Each $\eta^2$ statistic refers to the effect size of the overall ANOVA for that IV and DV.*
success of accommodations, report writer’s recommendations, and student input. The purpose of this study was to examine DSPs’ perceived usefulness of information included within a Model SOP and to determine if DSPs’ perceived usefulness varied as a function of their highest degree earned, discipline or field of study, source of training in the interpretation of disability documentation, and years of employment in postsecondary education.

The results of this study suggest that the surveyed DSPs find a well-organized and detailed SOP helpful when making accommodation decisions. On average, DSPs rated information related to test scores, rationale for previously applied accommodations, history of use or success of accommodations, report writer’s recommendations, and student input at least very helpful when making decisions for postsecondary students. These results, which are based upon a well-developed, comprehensive SOP, appear to support the mandate of IDEA that exiting students with disabilities be provided with documentation that outlines their functional needs and accommodations that may continue to prove helpful in subsequent educational and employment contexts.

The fact that DSPs found the test scores included in the Model SOP to be very helpful is not surprising given the extent to which DSPs are known to work with test scores when making eligibility decisions and subsequent accommodation decisions (Lindstrom, 2007; Ofiesh, Hughes, & Scott, 2004). We hypothesized that those with more education, those who studied in the field of education, those who were trained in reading disability documentation, and those with more years of experience would rate the test scores as significantly more useful. However, these hypotheses were not supported by the data. Perceived usefulness of the test scores did not significantly differ according to the highest degree earned, discipline or field of study, training in the interpretation of disability documentation, or years of employment in postsecondary education.

Another factor that may influence DSPs’ accommodation decisions is the stated rationale for previously used accommodations (Gormley et al., 2005). By understanding why specific accommodations were provided in the past, the DSP can determine the circumstances under which the same accommodations may be necessary in the college setting. The study hypothesized that DSPs with more education, who studied in the field of education, who were trained in reading disability documentation, and who had more years of experience would find the rationale for previously applied accommodations more useful compared to others within each grouping. No statistical differences were found among DSPs in this regard.

Similar findings occurred regarding DSPs’ perception of data related to the historical use of accommodations and the success of those accommodations when making decisions regarding the eligibility for accommodations in college. The perceived usefulness of this information did not vary by highest degree earned, discipline or field of study, training in the interpretation of disability documentation, or years of employment in postsecondary education. Lindstrom (2007) proposed that knowing accommodations used in the past, and how successfully those accommodations were for the individual, is critical when determining appropriate accommodations for postsecondary students with reading and written expression disorders, explaining that the effectiveness of accommodations varies among students with the same diagnosis. It is interesting to note that a difference regarding highest degree earned approached significance, with DSPs with more advanced degrees finding this section of the SOP less useful than those with less advanced degrees. It could be the case that DSPs with greater education rely more on their own knowledge of what should be effective for a language-based learning disability than on evidence from the student’s educational history.

When reviewing the psychoeducational evaluations of postsecondary students, DSPs have indicated that the report writer’s recommendations are the most useful section when making service delivery decisions (Ofiesh & McAfee, 2000). It was expected that all groupings of DSPs in this study would find the report writer’s recommendations included in the Model SOP to be useful. Although a significant difference was not found regarding highest degree earned, discipline or field of study, or source of disability documentation training, DSPs with greater than 10 years of experience perceived the report writer’s recommendations to be less useful than DSPs with less than five years of experience. One might infer from this finding that DSPs with fewer than five years of experience are less confident when making accommodation decisions than those with greater than 10 years of experience. This may then lead the less experienced DSP to rely more upon the report writers’ recommendations. Another possible explanation for this finding is that DSPs with greater than 10 years of experience may be more likely...
to question the value of recommendations for postsecondary education written by an educator in secondary education due to differences in the nature and rigor of the educational environments. All this said, all groups of DSPs still found the recommendations included in the Model SOP to be at least very useful.

DSPs often consider student input when making accommodation decisions (Gormley et al., 2005; Sharby & Roush, 2009), and this information is included on the Model SOP. In most cases, a postsecondary student either has a face-to-face interview with a professional or completes a questionnaire. However, students are often nervous and may limit the information they share with someone whom they just met. The student input in the Model SOP provides information that a DSP may not obtain during initial interviews. For example, it describes the amount of support the student was provided in high school and the student’s perception of the effectiveness of these accommodations. DSPs of all groupings perceived the student input included on the Model SOP to be at least very useful; no differences were found by group regarding this dependent variable. It appears that a detailed SOP may reduce the need for extensive interviewing and eliminate the need for additional questionnaires, regardless of the educational level, discipline or field of study, source of disability training, or years of experience of the DSP.

**Implications for Policy and Practice**

Under IDEA (2004), the intent of mandating SOPs is to help students with disabilities make a smooth transition from secondary to postsecondary environments. With respect to the transition to postsecondary education, DSPs are the professionals within the college or university that receive the SOP and use it for decision-making. The present investigation found that DSPs perceived the information included in the Model SOP to be at least very useful when making accommodation decisions for a student with a language-based learning disability. This result supports the relevance of the SOP mandate under IDEA in as much as learning disabilities and DSPs are involved. However, the comprehensiveness and level of detail of the Model SOP used in this study are not necessarily representative of the SOPs received by DSPs. IDEA does not provide specific guidelines about what must be included in a SOP. Policy makers may consider requiring the information recommended by the NTAS (2005) and included in Dukes et al.’s (2007) Model SOP to be included in all SOPs given the fact that DSPs, one postsecondary constituency, perceived the information to be useful. State and local education agencies might consider additional training for secondary educators who are charged with writing SOPs to promote the writing of similarly comprehensive SOPs.

As secondary educators are compelled to complete SOPs for transitioning students, it is encouraging that DSPs regardless of degree, discipline or field of study, source of disability training, or postsecondary disability experience are likely to perceive the SOP to be very useful if the SOP is comprehensive in nature. In short, this study provides evidence that DSPs value the result of the labor of secondary educators who produce comprehensive SOPs. Additionally, consistent and significant differences among those within a group (e.g., discipline or field of study, or highest degree earned) could signal the need for rigorous DSP training standards. At least with respect to the perceived usefulness of documentation, the present findings do not suggest this is necessary. Finally, this study only investigated the perceived usefulness of information included on a Model SOP and did not ask the participants to make actual decisions in order to rate their effectiveness. Additional information in this area would inform policy and practice.

**Study Limitations and Future Research**

The results of this study must be interpreted in light of the fact that the participants only included members of AHEAD, an international organization that includes postsecondary DSPs. It is possible that members of AHEAD are more interested and better informed regarding disability concerns, perhaps through the activities and publications of the organization, than are other DSPs who do not belong to AHEAD. Additionally, DSPs who are members of an international organization may have a more developed professional identity that could foster investment in disability-related information. Future studies should consider recruiting DSPs who are not members of AHEAD. Another limitation of this study is that AHEAD members were recruited through the organization’s bank of member email addresses. This may not have resulted in a representative sample of all AHEAD DSPs as only members who provided an email address for increased contact with the organization, a possible indicator of professional connectedness and commitment, would be able to participate. Recruiting only AHEAD members that desired increased contact with the national
organization may be related to the fact that very few respondents reported having no training in the interpretation of reading disability documentation. As a result, the perceptions of DSPs who lacked this type of training could not be measured. Further investigation into DSPs’ training on the interpretation of disability documentation, including SOPs, is needed.

As previously stated, this study sought to establish the perceived usefulness of information contained with a Model SOP. Future studies should investigate the extent to which the information contained within actual SOPs, which may vary in level of detail, impact DSPs’ accommodation decisions. Furthermore, this study asked DSPs to rate the perceived usefulness of information contained within a Model SOP. It remains unknown, for example, is if there are other categories of information or details that DSPs would find useful if they had been included within the Model SOP. Future studies should explore if there are additional types of information that DSPs believe should be included on an effective SOP and how the inclusion of this information would impact their decision-making.

The findings of this study are limited to the type of information and level of detail contained in the Model SOP for a student with a language-based learning disability. The study did not investigate if there is additional information that DSPs would find useful when making accommodation decisions for students with other disabilities. The SOP Template was developed to be used for students with a broad range of disabilities, but the Model SOP used in this study was designed for a student with a language-based disability. Generalization of these findings to SOPs involving other disabilities should be made with great caution. Further studies are needed to investigate the perceived usefulness of SOPs developed for students with other disabilities, such as Attention Deficit/Hyperactivity Disorder or deafness.

Finally, the interpretation of the results of this study is restricted to postsecondary education as the transition setting. Students exit postsecondary education with varying degrees and types of disabilities, and they transition to settings other than colleges and universities, including vocational training programs, the workplace, and residential living to name a few. Future research might study the perceived and actual usefulness of SOPs for professionals who work with persons with disabilities in those contexts.

**References**


**About the Authors**

Rebecca de Vries received her BA degree in psychology from La Roche College, her MSEd in counseling from the University of Pittsburgh, and her MA in psychology and Ph.D. in school psychology from Duquesne University. Her experience includes working as a counselor at Duquesne University and as a coordinator at the Women’s Center at the Community College of Allegheny County serving postsecondary students. She is currently a mental health therapist at the Samaritan Counseling Center of Western PA. She can be reached by email at: rebecca.devries3@gmail.com.

Ara J. Schmitt received his BS degree in psychology from the University of Illinois at Urbana-Champaign and his Ph.D. from Illinois State University. Among his clinical experiences, he worked as a school psychologist for Tempe Union High School District and assisted in the transition of students with disabilities to postsecondary education settings. He is currently an associate professor in the Department of Counseling, Psychology, and Special Education at Duquesne University. His research interests include the neuropsychological assessment and intervention of learning problems, manifestations of chronic illnesses in schools, and professional issues related to school psychology. He can be reached by email at: schmitta2106@duq.edu.
Preparing for the Future IT Era: Perceptions of Students with Disabilities About IT Training in South Korea

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Seoul National University

Jiyoung Son
Cheongju University

Mary Lee Vance
The University of Montana

Abstract
The purpose of the study was to identify the perceptions and needs of students with disabilities with respect to Information Technology (IT) training. Results emerged from a survey of 324 college students with disabilities from 17 universities in South Korea. Survey questions were divided into two sections: (a) perceptions about the relevance and usefulness of, and willingness to participate in training and (b) needs about training contents, method, and accommodations. The majority of students with disabilities perceived that IT skills were relevant to their future career and that it is useful for their career preparation. In addition, most of the students needed training in IT career skills and preferred practical experiences as training methods. Implications and recommendations for future research based on the results are suggested.

Keywords: college students with disabilities, IT training, perception, need, South Korea

In South Korea, there has been a recent and rapid increase in the number of students with disabilities entering junior colleges and universities. According to statistics, while only 5.2% of students with disabilities entered college in 1998, the number has increased every year, reaching 16.3% in 2010 (Ministry of Education, Science and Technology, 2010). This rise is facilitated by a policy called the Special Admission Procedures for Students with Disabilities (SAPSD), which has been implemented since 1995. The purpose of the policy is to guarantee students with disabilities the opportunities for higher education. It is an affirmative action policy for postsecondary students with disabilities (Kim, 2001). Through this policy the entrance quota is not restricted by the government. Schools can freely decide the number of the students with disabilities admitted each year. By this policy, students with disabilities including visual, hearing, and physical disabilities have opportunities to enter colleges without the entrance quota restraint. This has made a distinct difference in the increased number of students with disabilities attending postsecondary institutions.

Two other policies have contributed to facilitating higher education for students with disabilities in South Korea. The Special Education for Persons with Disabilities Act (SEPDA) of 2007 and the Anti-discrimination and Rights Remedy for Persons with Disabilities Act (ARRPDA) of 2007 guarantee students the right to request and receive reasonable accommodations for their college education. The SEPDA has given rise to the establishment of disability support services across many colleges. The legislation was enacted to ensure that colleges make reasonable modifications for the full participation of students with disabilities. More importantly, it stipulates that colleges are obligated to establish disability support centers staffed by person-
nel who are exclusively responsible for working with students with disabilities. It is worth noting that SEPDA clearly defines supporting higher education for students with disabilities for the first time. It is, however, rather limited to setting up the support committee and the center for students with disabilities, which indicates that more comprehensive and detailed policies are lacking (Kim, Son, Kim, Kang, & Jeong, 2009). ARRPDA additionally charges colleges with making more efforts to provide facilities, services, and human resources so that students with disabilities do not encounter discrimination. However, as the committees in charge are not independent, there are concerns that orders for correction can be made only in a limited form (Kim et al., 2009). Currently, provisions defining higher education for the students with disabilities are limited and are not considered in a variety of circumstances. Therefore, it is time for the government to intervene so that these provisions can take effect in reality.

As of 2011, the number of students with identified disabilities in South Korea was 5,149, for universities 1,156 for junior colleges, and 315 for graduate schools (Ministry of Education, Science & Technology, 2011). These numbers make up only 0.2% of all Korean college students. Concerning the current situation by the types of disability, the number of students with physical disabilities who were enrolled is 3,965, occupying 57.3%, which is more than half of the students with disabilities on the whole, while the number of enrolled students with visual disabilities is 1,024 and those with hearing disabilities who were enrolled is 944, occupying the second and third largest categories, respectively. These results show that compared to the United States, where more than 10% of college students have identified disabilities (National Center for Education Statistics, 2008), the ratio of students with disabilities in Korea is significantly low, with only 0.2%. As for the types of disability, students with learning disabilities occupy the highest percentage in the United States (National Center for Education Statistics, 2008), while in Korea, those with physical abilities are the most numerous. The significant difference is that in the United States, students with various kinds of disabilities including learning disability, intellectual disability, and emotional disability apply to higher education and often become eligible for accommodations, while in South Korea, students with such disabilities are not generally considered for college education. This suggests that in South Korea’s future, questions remain about how broadly existing laws and policies will apply to the full range of individuals with disabilities.

Even though there have been significant positive changes in the number of college admissions, the college life of students with disabilities after admission still leaves much to be desired. Among studies on students with disabilities in South Korea, Kim (2001) found that the ratio of those who are placed on academic probation, take time off, or drop out is higher among students with disabilities. In addition, Kim, Park, and Lee (2003) found that students with disabilities have a lower level of academic achievement and are generally dissatisfied with academic supports provided by the universities. In a similar context, Kim, Lee, Kim, Kim Hye, and Park (2004) conducted a qualitative study on the difficulties of campus life for students with disabilities. Students reported that the lack of support and accommodation in classes made it hard for them to succeed in their courses. They also reported experiencing alienation and difficulties when entering the workforce. College students and faculty members’ lack of understanding was also referenced.

The Ministry of Education, Science & Technology in South Korea launched evaluations of support services to college students with disabilities in 2003, 2005, and 2008. These included on-site evaluations by specialists who assessed various fields such as admissions, teaching and learning support, facilities and equipments. Evaluations of 192 universities and junior colleges, in which one or more students with disabilities attended as of 2008, revealed that 112 (63%) universities needed improvements. While this situation reflected an improvement compared to earlier evaluations in 2005, the results showed that support system for students with disabilities was still insufficient. With increasing numbers of students with disabilities in South Korea, there is a growing recognition of a need to provide higher education services for students with disabilities. While government policies are increasing the supports that are now provided in college environments, there are still areas for improvement.

In order to help alleviate these problems, several technology concepts have been addressed as South Korean colleges and universities have enhanced the provision of services to students with disabilities. Technology has been found to help students with a wide range of abilities prepare for and succeed in college life. For people with disabilities, technology has the potential to maximize their independence and
participation in academic programs as well as help with career preparation and other college activities (Burgstahler, 2003). Also, it can help reduce the problems that students with disabilities encounter in the college environment. For example, students with mobility impairments can use a variety of adaptations, from dictation programs to voice control software, that allow hands-free dictation and menu controls. Likewise, software and hardware that allow one-handed typing, along with a variety of alternative mice and computer input devices, are among the most widely-used forms of adaptive equipment (Fichten, Asuncion, Robillard, Fossey, & Barile, 2003). Technology provides students with disabilities the ability to gain access and improve their quality of life.

As the new trend in technology concepts, Information Technology (IT) is rapidly expanding in all fields. With the development and expansion of IT worldwide, employment in IT fields such as computer-related jobs, electronics, and communication technology continues to increase. The number of South Korean jobs in the IT field also increased significantly. Nearly 6% of adults in the workforce now have jobs in the IT field, which is close to the Organization for Economic Co-operation and Development average ([OECD], 2011). With this global trend, college students pay more attention to IT in order to prepare for success in the job market.

In South Korea, higher education has recently focused on training IT professionals. In 2006, the Ministry of Information and Communication launched education programs for developing IT specialists through university programs. Specifically, the government created internships in IT for college students, supported revision of curriculum in IT-related departments, and encouraged education based on state-of-the-art IT (Lee, Yu, & Ahn, 2004). Furthermore, the Ministry of Education and Human Resources Development supported IT-related specialized programs to build the system of developing human resources (Lee, 2006). Additionally, universities have provided a variety of educational programs to help students prepare to acquire certificates in IT fields such as Java and Oracle. In 2011, Seoul National University began providing education programs for smart device applications development to help students remain current with recent IT skills areas.

Clearly, this IT era can provide students with new opportunities. Postsecondary education is supporting the need for computer literacy by providing students opportunities to learn and use new technologies in all aspects of their schooling (Fichten et al., 2003). IT-related skills are closely related to effective preparation for successful employment. Consequently, there are higher demands for IT education among college students. In this context, the perceptions of college students with disabilities have also been affected by a growing focus on IT training. This trend influences students with disabilities in their preparations for jobs and also the manner in which colleges and universities can support those students. That is, students with disabilities have come to consider IT-related majors and future occupations, thus increasing their demands for education in IT fields to a considerable degree. If students with disabilities are technologically illiterate, they will be less competitive in the future labor market.

Yuck (2003) examined 117 workers with disabilities in IT fields in South Korea. These workers were mostly in charge of the management of system operation, software development, and office work. The study showed that these workers were generally satisfied with their jobs and that they received wages much higher than that of the workers with disabilities on the whole. According to another survey on disability employment conditions in 2000, 32.4% of people with disabilities reported that they preferred computer and information processing-related vocational trainings (Yuck, 2003). As more and more people with disabilities express a preference for IT jobs, IT career preparation programs for students with disabilities have grown in South Korea.

Despite some existing studies, research examining the specific IT training-related needs of college students with disabilities is still in its early stage in South Korea. Until now, attention has been on high school graduates and adults with disabilities (Yuck, 2003), while college students’ perceptions about and actual IT training needs have largely been ignored. Moreover, current IT training programs for people with disabilities are not for those who already have intermediate or advanced skill sets. Rather, training has historically focused mainly on the acquisition of basic computer skills.

Therefore, the purpose of the study was to identify the perceptions and needs of postsecondary students with disabilities with respect to IT training. First, the study surveyed students’ perceptions about the relevance of IT skills for their future vocations, the usefulness of IT training for career preparation, and
their willingness to participate in such trainings. Additionally, the impact of certain variables (i.e., gender, major, type of disabilities, and severity of disabilities) on students’ perception level was measured. Second, students were surveyed to highlight their specific needs with respect to IT training programs. They were asked to share their ideas concerning preferable areas of IT fields, training content, preferred instructional methods, and academic accommodation requirements in order to identify the optimal learning environment for college students with disabilities.

### Method

#### Participants

In order to identify students’ perceptions of IT training for career preparation, 324 students with disabilities from 17 universities in South Korea were surveyed. All participants were enrolled at the time of the survey. Of the 324 students, 188 students were male (58.2%) and 135 students were female (41.8%) ranging in age from 18 to 53 (M = 24.0, SD = 5.4). The number of students enrolled in small universities was 158 (48.8%) while 166 respondents (51.2%) were enrolled in large universities. They studied the following academic areas: liberal arts and social studies (56.8%, n=184), natural science and engineering (17.6%, n=57), art and gymnastics (13.0%, n=42), education and rehabilitation (11.4%, n=37), and other (1.2%, n=4). Most of the students were in a degree granting program at the undergraduate level. Freshmen comprised 32.4% (n=101), sophomores 29.5% (n=92), juniors 18.9% (n=59), and seniors 16.3% (n=51) of the total number of students surveyed. Additionally, nine students (2.9%) were in graduate level programs.

Students reported the following types of primary disabilities: physical disabilities (52.0%, n=168), hearing impairment (27.9%, n=90), visual impairment (14.9%, n=48), and others (i.e. multiple disorders, health impairments) (5.2%, n=18). Severity of the disability was as follows: severe/profound (66.8%, n=215), moderate (24.2%, n=78), and mild (9.0%, n=29). In South Korea, medical institutions diagnose disabilities and decide the severity of disability, with grades from 1 to 6, according to the Welfare Law for the Disabled. This study defined grade 1-2 as severe/profound, 3-4 as moderate, and 5-6 as mild. The characteristics of the participants are shown in Table 1.

#### Instrumentation

The researchers developed a questionnaire pertinent to perceptions and needs for IT training based on a review of previous research and experiences in South Korea. In Yuck’s study (2005), the contents of the interviews dealing with employees with disabilities in the IT field was referenced. Additionally, the format of the survey items in Hill’s study (1996) was incorporated into the questionnaire. In the survey, questions were divided into two sections: (a) students’ perceptions about the relevance of IT training, the usefulness of IT skills, and their willingness to participate in trainings, and (b) students’ training needs, including their preferred area of IT fields, training content, instructional methods, and academic accommodations that would be needed. To ensure the validity of the questionnaire, two Ph.D.’s who had conducted related research were consulted to review and modify questions as necessary. The questionnaire included a series of forced choice questions (i.e., How much do you think IT training is related to your future jobs? How much do you think IT training is useful to your job preparation? How much do you think you are willing to participate in IT training programs?). Students could choose multiple answers for questions concerning their perceptions and needs (i.e., Of the following IT fields, which area do you prefer? Of the following, which content do you think is needed for IT training? Of the following, which teaching method do you think is effective for IT training?). Also, demographic questions ranged from age and gender to postsecondary education (e.g., institution attended, academic standing).

#### Procedure

Universities that had more than ten students with disabilities enrolled, based on the 2008 National Report in South Korea (Ministry of Education, Science & Technology, 2008), were invited to participate in this study. In 2009 between March 10th and 31st, the survey was forwarded nationally to the 45 eligible universities in South Korea. Subsequently, questionnaires were sent to each student with a disability in a paper-based format as well as electronically, using the staff in charge of the disability service center at the universities to distribute the survey. A total of 1,000 questionnaires were sent to the universities and 324 (32.4%) students from 17 universities responded to the questionnaire.
Table 1

*Characteristics of the respondents in the research*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Respondents (N=324)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
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<td></td>
</tr>
<tr>
<td>Male</td>
<td>188</td>
<td>58.2</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>135</td>
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</tr>
<tr>
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<tr>
<td>Small</td>
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<tr>
<td>Large</td>
<td>166</td>
<td>51.2</td>
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<td>Area of Study</td>
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<td></td>
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<tr>
<td>Liberal arts and social studies</td>
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<tr>
<td>Natural science and engineering</td>
<td>57</td>
<td>17.6</td>
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<tr>
<td>Arts and gymnastics</td>
<td>42</td>
<td>13.0</td>
<td></td>
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<tr>
<td>Education and rehabilitation</td>
<td>37</td>
<td>11.4</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>4</td>
<td>1.2</td>
<td></td>
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<tr>
<td>Level of Study</td>
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<td>Sophomore</td>
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<tr>
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<td>59</td>
<td>18.9</td>
<td></td>
</tr>
<tr>
<td>Senior</td>
<td>51</td>
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<td></td>
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<td>Type of Disability</td>
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<td></td>
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<tr>
<td>Physical disabilities</td>
<td>168</td>
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<td></td>
</tr>
<tr>
<td>Hearing impairment</td>
<td>90</td>
<td>27.9</td>
<td></td>
</tr>
<tr>
<td>Visual impairment</td>
<td>48</td>
<td>14.9</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>18</td>
<td>5.2</td>
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<tr>
<td>Severity of Disability</td>
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<td></td>
<td></td>
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<tr>
<td>Severe/profound</td>
<td>215</td>
<td>66.8</td>
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<tr>
<td>Moderate</td>
<td>78</td>
<td>24.2</td>
<td></td>
</tr>
<tr>
<td>Mild</td>
<td>29</td>
<td>9.0</td>
<td></td>
</tr>
<tr>
<td>No response</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Data Analysis

Descriptive summaries of the survey results from the 324 students with disabilities were recorded. In order to compare students’ characteristics concerning perceptions, the Pearson’s chi-square test was implemented. Since the questions about students’ needs could have more than one answer, an analysis of frequency was conducted based on multiple responses.

Results

The findings are based on the responses from the participating 324 college students with disabilities in South Korea. In order to identify students’ perceptions and needs regarding IT training, a survey investigated their perceptions about the relevance and usefulness of, and their willingness to participate in IT training. The study also sought to identify students’ specific needs that should be met through some form of a training program. The survey results for each question are summarized as follows.

Students’ Perceptions of IT Training

Perceived relevance of IT skills to future career. The majority of students responded that with respect to their future career, IT skills were highly relevant (35.5%, n=115) or relevant (46.6%, n=151). Only 9.3% (n=30) of the students answered that IT skills were not relevant to their future career and the remaining students (8.6%, n=28) stated that they did not know if IT skills were relevant. The respondents were positive about IT skills from the perspective of recognizing that it could be helpful in preparing them for a future career. A majority of college students with disabilities participating in the survey perceived that IT skills were directly or indirectly relevant to their future career.

Perceived usefulness of IT training for career preparation. Students were asked to indicate their perceptions of how useful IT training would be in preparing them for a successful future career. The majority of students indicated that IT training would be highly useful (42.6%, n=138) or useful (43.2% n=140) in preparing for their career. Only 2.8% (n=9) stated IT training would not be important for their career and the remaining students (11.4%, n=37) stated they did not know the importance.

Willingness to participate in the IT training program. Students were asked to indicate their willingness to participate in IT training programs in the future. The willingness of most students was very high (28.7%, n=93) or high (55.2%, n=179). Only 6.2% (n=20) of the students answered that they did not want to participate in future training programs and the remaining students (9.9%, n=32) mentioned they did not know (see Table 2)

Impact of Student Variables on Students’ Perceptions

Several analyses were conducted to determine whether specific student variables (i.e., gender, major, type of disabilities, and severity of disabilities) had a significant impact on participants’ perceptions of information technology (see Table3). Students’ responses (i.e., highly relevant, relevant, not relevant, don’t know) were analyzed in order to identify the impact of individual variables. The Pearson’s chi square tests were conducted to examine the impact of individual variables (i.e., gender, size of university, area of study, level of study, type and severity of disability) in the questions of the perceived relevance, usefulness, and willingness.

First, the ratings of the perceived relevance of IT skills to future careers had similar patterns regardless of gender, class, and major. The only significant differences found were in the types of disabilities (chi-square=17.474, p<.05) and severity of disabilities (chi-square=18.887, p<.05). In regard to the type of disability, 38.7% of participants with a physical disability expressed that the relevance was very high and 44.0% rated it as relevant. Meanwhile, only 33.3% of the students with a visual impairment and 32.6% of the participants with hearing impairment mentioned that the relevance was very high. In terms of the severity of the disability, 41.1% of the respondents with severe disabilities indicated that relevancy was very high, while 25.6% with moderate disabilities and 20.7% with mild disabilities rated that relevancy was very high.

Second, the perceived usefulness of IT training for career preparation showed similar rating patterns when gender, class, major, and severity of disabilities were investigated. The only significant differences were found in the types of disabilities (chi-square=21.474, p<.05). This means that 49.7% of the students with physical disabilities answered that the usefulness was very high, while 44.7% of the students with visual impairment and 32.2% of the participants with hearing impairment mentioned that the usefulness was very high. In terms of the severity of the disability, 41.1% of the respondents with severe disabilities indicated that relevancy was very high, while 25.6% with moderate disabilities and 20.7% with mild disabilities rated that relevancy was very high.

Finally, students’ willingness to participate in an IT training program showed similar results regardless
Table 2

*Students’ Perceptions of IT Training*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Respondents (N=324)</th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Relevance of IT skills to future career</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Highly relevant</td>
<td>115</td>
<td>35.5</td>
<td></td>
</tr>
<tr>
<td>Relevant</td>
<td>151</td>
<td>46.6</td>
<td></td>
</tr>
<tr>
<td>Not relevant</td>
<td>30</td>
<td>9.3</td>
<td></td>
</tr>
<tr>
<td>Don’t know</td>
<td>28</td>
<td>8.6</td>
<td></td>
</tr>
<tr>
<td>Usefulness of IT training for career preparation</td>
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<td></td>
</tr>
<tr>
<td>Highly useful</td>
<td>138</td>
<td>42.6</td>
<td></td>
</tr>
<tr>
<td>Useful</td>
<td>140</td>
<td>43.2</td>
<td></td>
</tr>
<tr>
<td>Not useful</td>
<td>9</td>
<td>2.8</td>
<td></td>
</tr>
<tr>
<td>Don’t know</td>
<td>37</td>
<td>11.4</td>
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<tr>
<td>Willingness to participate in the IT training program</td>
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<tr>
<td>Highly willing</td>
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<td>28.7</td>
<td></td>
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<tr>
<td>Willing</td>
<td>179</td>
<td>55.2</td>
<td></td>
</tr>
<tr>
<td>Not willing</td>
<td>20</td>
<td>6.2</td>
<td></td>
</tr>
<tr>
<td>Don’t know</td>
<td>32</td>
<td>9.9</td>
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</table>

Table 3

*Impacts of Students Variables on Students’ Perceptions*

<table>
<thead>
<tr>
<th>Variable</th>
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</thead>
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<tr>
<td></td>
<td>Relevance</td>
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<tr>
<td>Gender</td>
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</tr>
<tr>
<td>Size of University</td>
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</tr>
<tr>
<td>Area of Study</td>
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</tr>
<tr>
<td>Level of Study</td>
<td>20.10</td>
</tr>
<tr>
<td>Type of Disability</td>
<td>17.47*</td>
</tr>
<tr>
<td>Severity of Disability</td>
<td>18.89*</td>
</tr>
</tbody>
</table>

* p < .05
of gender, class, major, types of disabilities, and severity of disabilities. None of the student variables had a significant impact on their willingness to participate in IT training.

**Students’ Needs for IT Training Program**

*Preferable area of IT training.* All items about students’ needs had multiple responses. In terms of preferred areas within the IT fields, a majority of the students (63.0%, n=204) showed interest in managing computer software (e.g., Word, Excel, PowerPoint). Web data management was mentioned by 32.4% of the students (n=105). The rest of the students’ preferred areas are summarized as follows: Web designing (28.7%, n=93), computer programming (17.0%, n=55), computer networking (13.6%, n=44), network security (13.0%, n=42), and computer system management (12.3%, n=40).

*Training content.* Students described their IT training needs for future career preparation. The majority of students (55.2%, n=179) stated that they needed to be provided more advanced IT skills that would better prepare them for an IT professional career. Fifty percent (n=162) of the students expressed the need for increased interpersonal and social skills in order to more appropriately relate to co-workers and supervisors. In addition, 43.5% (n=141) mentioned the need for training that dealt with communication and presentation skills and 38.5% (n=124) considered problem-solving skills in real-world settings as a need. Added to this, 32.4% (n=105) stated a need for cooperation skills. Finally, 23.5% (n=76) expressed a need for career counseling and knowledge of mathematics, science, and statistics.

*Instructional method in training.* More than half of the participants, or 60.2% (n=195), expressed a need for career skills and an individual practicum. In addition, 50.9% (n=165) preferred internships and work experiences in a real IT workplace, 30.6% (n=99) identified preferences for small-group IT projects, and 20.4% (n=66) expressed an interest in workshops held by IT company workers.

*Academic accommodation in training.* More than one-third of the participants, or 39.2% (n=127), mentioned that they would need auxiliary aids and helpers to assist students in wheelchairs as they navigated the campus. In addition, 38.3% (n=124) of the participants said they would need text files for textbooks and lecture notes. Additionally, 31.2% (n=101) expressed a need for sound or video files for lectures. Sign language interpretation and text translation were identified as a need by 29.6% (n=96) of the respondents. Finally, 25.9% (n=84) noted a need for assistive technology support and 25.6% (n=83) identified transportation support as a need (see Table 4).

**Discussion**

The purpose of the study was to identify the perceptions and needs of college students with disabilities in South Korea with respect to IT training for career preparation. Regarding their perceptions on the relevance of IT skills, most students with disabilities perceived that IT skills were relevant to their careers. Students also reported that IT training would be useful in preparing for their future careers. Most of them expressed willingness to participate in IT training programs. The results of this study indicate that the majority of the students with disabilities perceived IT skills as critical components for their successful career planning and preparation. Also, the results imply that students with disabilities in South Korea perceive that a strong IT background can improve their prospects in successful career planning, preparation, and employment.

This research lays a foundation for college IT training programs. The results indicated that there are significant levels of needs for IT training programs in South Korean institutions of higher education. Students want an education that can improve their ability to pursue career opportunities in high-tech fields previously unavailable to them. Hence, universities need to provide accessible programs that can help students with disabilities develop advanced IT skills.

In addition, the research findings illustrate that a student’s type and severity of disability impacts his/her perception of the relevance of IT training for future careers. The perceived usefulness of IT training for career preparation was also influenced by the participant’s type of disabilities. The more severe the student’s disability, the greater the perceived need for IT training programs. Also, students with physical impairments attached a greater level of importance to IT training than did the students with visual or hearing impairments. This result bears a strong resemblance to a previous research in South Korea (Yuck, 2003) where more persons with severe physical disabilities completed IT trainings. The results can be interpreted simply that, the greater the severity of a physical dis-
### Table 4

**Students’ Needs for IT Training Program**

<table>
<thead>
<tr>
<th>Variable</th>
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<th>%</th>
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<tr>
<td>Preferable area in IT fields</td>
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<tr>
<td>Managing computer software</td>
<td>204</td>
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<td>Web data management</td>
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<td>Web designing</td>
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<td>28.7</td>
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<td>Computer programming</td>
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<td>Computer networking</td>
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<td>Network security</td>
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<td>Computer system management</td>
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<td>Professional it career skills</td>
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<tr>
<td>Interpersonal and social skills</td>
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<td>Communication and presentation skills</td>
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<tr>
<td>Problem-solving skills</td>
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<td>Cooperation skills</td>
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<tr>
<td>Career counseling and basic knowledge of mathematics, science, and statistics</td>
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<td>23.5</td>
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<tr>
<td>Instructional method</td>
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<tr>
<td>Career skills training and individual practicum</td>
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<td>Internship and work experience</td>
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<td>50.9</td>
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<td>Small-group work projects</td>
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<td>Workshops</td>
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<td>Academic accommodation</td>
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<td>Text files for textbooks and lecture notes</td>
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<td>Sign language interpretation and text translation</td>
<td>96</td>
<td>29.6</td>
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<td>Assistive technology</td>
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<td>Transportation support</td>
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<td>25.6</td>
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ability, the greater the perception that IT training will have a positive effect on a student’s future career. Therefore, in order to provide effective and systematic training programs to college students with disabilities, disability variables such as type and severity should be considered.

**Recommendations**

First, plan systematic training programs in the field of IT skills based on the individual needs of students with disabilities. In spite of the great needs for IT training programs, the current educational programs are not sufficient to meet the specific needs of the students with disabilities. Programs are needed that can provide IT skills directly related to students’ future careers. In addition, this study and others have shown that students have a variety of needs ranging from basic IT literacy to advanced level for all career fields, including high tech. Also, the research findings indicated that the students recognized they needed interpersonal and social skills. This finding implies that the students may have been socially isolated or lack social skills and confidence to compete for employment. Therefore, IT training programs should be provided at various levels of knowledge and skill so that students can select trainings based on their individual needs.

Second, provide practical work-based IT training so that students can make a smooth transition from the college to the workplace. Regarding their needs for instructional methods, most students preferred individual practice, internship, and work experiences. As this study’s results demonstrate, it has become more important for students with disabilities to gain work-based experience in the IT field. As one of the most effective learning methods, work-based learning, has drawn a lot of attention. Work-based IT training helps students acquire job skills, explore accommodation options, and learn how to use IT in work settings (Lu-uecking & Fabian, 2000). Through work-based training, students with disabilities can apply theories learned to an actual work setting. Furthermore, they can develop practical communication skills and easily gain contacts for employment after graduation.

Third, incorporate individual and various accommodation plans into the IT training program. The most frequently needed types of accommodations cited by participants in this study include auxiliary and mobility supports. Large numbers of respondents also expressed a need for helping persons, followed by accessible lecture audio or video files. These accommodations, including alternative materials, assistants, and digital devices, can ensure accessible IT training that promotes positive academic and career outcomes for students with disabilities.

Recommendations based on the results must be considered with respect to several limitations. The current study was limited in sample size. A larger, random sample of college students with disabilities would be preferred. A follow-up study of a suitably large random sample should be continued and explore significant implications of survey data. Also, further research should be conducted to identify the instructional strategies and successful factors for students with disabilities in IT training program. The study should explore in more detail best practices needed at the universities for students with disabilities and what would be required to provide the necessary accommodation in South Korean colleges and universities.

**References**


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A Campus Survey of Faculty and Student Perceptions of Persons with Disabilities

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Abstract
A positive classroom climate is essential to the success of students with disabilities in higher education. In a study of 268 students and 76 faculty members at a small liberal arts women’s college in eastern Pennsylvania, participants responded to statements about students with disabilities. Findings indicate that faculty and students perceive the classroom climate differently, with faculty members describing the campus as more welcoming, inclusive, and supportive than students. Faculty and students agree that students with disabilities are capable of achieving success in the classroom and that faculty members are willing to provide classroom accommodations. Students indicate discomfort with sharing their disabilities with faculty members, however, indicating a need for increased and ongoing faculty development in best practices for creating a supportive classroom climate for students with disabilities.

Keywords: Disabilities, classroom climate, higher education, perceptions

Students with disabilities are increasing in numbers in higher education. The implementation of federal legislation and factors such as a demand for a better educated workforce and improved overall conditions to accommodate students are attributed as factors in these growing numbers (Hergenrather & Rhodes, 2007; Kiuhara & Huefner, 2008). Subsequently, faculty and students are challenged to provide an atmosphere that is supportive and encourages academic success. However, there is still some concern that faculty may hold preconceived stereotypes that can be a barrier to a student’s success. The label of disability may influence faculty members’ expectations of students and there may be a general lack of sensitivity to the needs of students identified as having a disability (Houck, Asseline, Troutmer & Arrington, 1992). Although the research has suggested that faculty members are supporters of students with disabilities, there is much to understand in terms of the overall climate at the college level. The prevailing characteristics of the environment (climate), particularly in the classroom, affect students’ success, especially for students with disabilities (Hall & Sandler, 1999). The area of sensitive and supportive environments needs to be further explored as the academic progress of students with disabilities is significantly affected by the attitudes of faculty and their willingness to provide accommodations, both of which contribute to classroom climate (Wolman, Suarez McCrink, Figueroa Rodriguez, & Harris-Looby, 2004).

College and university settings are the primary ways for students to gain access to knowledge and faculty are directly responsible for understanding this student population. Students may question the need to disclose their disability in order to receive accommodations if the classroom climate is not viewed as a favorable one (Kiuhara & Huefner, 2008). Academic success for students with disabilities is therefore significantly affected by the attitudes of faculty and their willingness to provide accommodations (Wolman et al., 2004). Further, students’ perceptions of their fellow classmates and subsequent acceptance and support of those who are different from themselves are important to their satisfaction with and success in the college environment.
Review of the Literature

The classroom climate and student success are strongly influenced by faculty members’ willingness to provide accommodations for students with disabilities (Baggett, 1994; Fonosche & Schwab, 1981). Consistently, research demonstrates that faculty members are willing to provide teaching accommodations such as permission to record lectures, extended time for projects and assignments, and extended test time (Houck et al., 1992; Mathews, Anderson, & Skolnick, 1987; Vogel et al., 1999). However, faculty members are less willing to provide classroom accommodations such as copies of lecture notes, alternative assignments, and extra credit, and are unwilling to make exceptions for poor spelling and grammar on exams or provide an alternate form of an exam (Houck et al., 1992; Mathews et al., 1987; Vogel, Leyser, Wyland, & Brulé, 1999). Students have reported that faculty members are often unreceptive to requests for accommodations and lack information about the impact of disabilities in the classroom, both of which influence the overall climate for students with disabilities (Farone, Hall, & Costello, 1998; Houck et al., 1992).

The classroom climate is further compromised for students with disabilities when the obstacles they face in the accommodations process is the result of a lack of faculty knowledge regarding disability law. Dowrick, Anderson, Heyer, and Acosta (2005) found that students experience difficulty in securing basic accommodations such as room changes for students who use wheelchairs and appropriate text formats for students with low vision as a correlate to low faculty knowledge about legal requirements for disability accommodations. Importantly, student perceptions of faculty knowledge of disabilities and receptiveness to disability accommodations are significant factors in influencing students to seek the additional disability support that could improve their achievement and degree completion. In fact, negative interactions with faculty resulted in students’ unwillingness to pursue support in a study by Harman-Hall and Hagga (2002), while positive reactions from faculty inspired students to seek out resources. In the same study, peer reactions/interactions were found to have no effect on student decision-making related to accessing additional disability support. This finding indicated that the nature of student/faculty interaction is a significant factor in students’ decisions to secure additional support for a disability as well as an important factor in classroom climate for students with disabilities.

The tenor of the interaction between students and faculty can be affected by the nature of students’ disabilities, as faculty reported more negative attitudes toward accommodating students with psychiatric and attention disorders than toward students with obvious physical or learning disabilities (Hindes & Mather, 2007). In the same study, faculty members report that providing accommodations for students adds an extra layer of responsibility to their heavy loads and potentially compromises the quality of the learning environment. Faculty members’ willingness to provide accommodations to all students with documented disabilities contributes to a positive classroom climate, as does student perception of such willingness.

Classroom climate is affected by faculty expectations as well. Houck et al. (1992) reported on faculty members’ belief that a learning disability can limit a student’s pursuit of certain majors and probability of degree completion. In nursing, faculty members express low expectations that students with learning disabilities will become successful nurses, often citing patient safety as a concern despite the lack of evidence that patient safety has ever been jeopardized by a nurse with a disability (Sowers & Smith, 2004). Low expectations often result in low student performance and are a barrier to success (Dorwick et al., 2005). Expecting high achievement and quality work from all students are ways to improve the classroom climate for students with disabilities.

Faculty disposition toward students with disabilities is another important factor in the overall classroom climate, and according to several studies, most faculty members demonstrate a positive attitude toward students with disabilities (Fonosch & Schwab, 1981; Hengst, 2003; Kelly, 1984). It should be noted that one study by Minner and Prater (1984) reported that faculty viewed students with disabilities unfavorably when compared with students without disabilities. In some studies, faculty exhibited behaviors that can compromise the classroom climate for students with disabilities, such as directing negative statements toward students about their disabilities and accommodations or questioning the legitimacy of the student’s request for accommodations (Beilke, 1999; Jensen, McCrary, Krampe, & Cooper, 2004; Kurth & Mellard, 2006).

It can be surmised that faculty members’ views of students are influenced by their knowledge of disability issues and familiarity with people with disabilities. Faculty report a desire for more information on the im-
pact of disabilities in the classroom (Houck et al., 1992). Many faculty report limited training in and exposure to issues related to disabilities in higher education (Leyser et al., 2000). Backels and Wheeler (2001) report that faculty members are unsure of their options related to extending flexibility and making referrals for students with mental health issues. Sowers and Smith (2004) also indicate that faculty members likely find working with students’ hidden disabilities such as mental health, learning, and attention disabilities more challenging than working with more apparent physical disabilities. Additionally, when faculty members feel supported by their departments in their teaching of students with disabilities, they report feeling that accommodations are typically easy to implement, thus improving overall classroom climate (Bourke, Strehorn, & Silver, 2000).

Institutional support for faculty members teaching students with disabilities is imperative in improving the classroom climate for students with disabilities, and ongoing training is a significant piece of that support. In fact, research demonstrates that educating faculty members on disability issues increases their knowledge of disability law, awareness of the impact of disabilities, and willingness to provide accommodations (Bigaj, Shaw, & McGuire, 1999; Murray, Lombardi, Wren, & Keys, 2009; Sowers & Smith, 2004). Increasing faculty education and awareness clearly leads to an improved classroom climate for students with disabilities.

Adding to the existing body of research on classroom climate for students with disabilities, the present study was conducted to examine attitudes and perceptions of persons with disabilities on a college campus. It was expected that faculty and students would differ in their perceptions of persons with disabilities, wherein faculty would be accepting and accommodating while other students would not be as accepting of others unlike themselves. Further, responses from students with disabilities were expected to provide insight into their life on a college campus. Specifically, the three major hypotheses of the study were as follows:

1. There is no difference in faculty and student perceptions of persons with disabilities.
2. There is no difference in faculty and student perceptions of students with disabilities in the collegiate classroom.
3. Students with disabilities do not perceive different treatment by faculty and other students in the collegiate classroom.

Method

Participants

In Fall 2009, a convenience sample of approximately 400 faculty and college students from a small liberal arts women’s college in eastern Pennsylvania participated in this study. All college faculty and students received an email that introduced and explained the purpose of the study. To participate, everyone was invited to complete an online survey. They were told their participation was voluntary, their responses were confidential and anonymous, and that the survey was approved by the College’s Institutional Review Board. Two follow-up reminder emails were sent to the campus community.

There was a 75% response rate for faculty and a 22% response rate for students. Of the 76 faculty who responded to the demographic questions on the survey, 70% were females, 60% taught at the college for six or more years, 69% taught full-time, and 26% had tenured status. Approximately 31% of the faculty taught in the natural sciences, 26% taught in professional certification programs (i.e., Nursing, Social Work, Nutrition, Education), 17% taught in the social sciences, and approximately 26% taught in either the arts and performing arts area or humanities area. Not all of the student respondents answered the demographic questions on the survey. Of the 268 students who did respond to the demographic questions, 62% were traditional students (ages 18-22 years) and 38% were lifelong learning students (ages 23 and above years). Approximately 96% of the student respondents were females, and 83% were Caucasians. The breakdown by class was 15% freshmen, 15% sophomore, 31% junior, 34% senior, and 5% graduate. These students majored in a variety of programs, 54% lived off campus, and 62% took over 13 credits that semester. Of 232 students who responded to the disability question, 53 (22.8%) reported having some sort of disability which is representative of the 55 registered students with disabilities at the college. However, no attempt was made to identify the students with disabilities prior to the administration of the survey.

Materials

There were two different versions of an online survey; one for faculty and one for students. In both versions, many of the same questions were asked of both populations so that direct comparisons could be
made. The first question for both populations asked their opinion on the overall climate at the college for students with disabilities. The second section for both populations contained 10 items on their beliefs about students with disabilities that were rated on a 5-point Likert scale where 1 equaled “strongly disagree” and 5 equaled “strongly agree” and identical versions of the questions were used in almost all sections described in this paragraph. Examples of items in this section included, “I think that all students with disabilities have learning problems” and “All students with disabilities receive accommodations to meet their needs in the classroom.” The third section focused on inclusion in the classroom and contained seven items. An example item from this section is, “Teachers focus more on students with disabilities than the rest of the class.” The fourth section, containing two items, focused on capabilities. An item such as, “How capable are students with disabilities of meeting the demands of your academic major?” was found in this section. The fifth section, that was common to both populations, contained seven items focusing on student reactions to those with disabilities. Respondents used the same 5-point Likert scale to respond to items such as, “Other students think that students with disabilities receive more than their fair share of college provided services.” The last section asked about respondents’ familiarity with people with disabilities.

In the faculty survey, there was also a separate section designed to gather beliefs about students with disabilities, willingness to make accommodations, and related issues. All of these items were rated on a 5-point Likert scale where 1 equaled “strongly disagree” and 5 equaled “strongly agree.” It should be noted that the survey was not designed to assess faculty members with disabilities, due to the low number of available individuals on campus who would fit that category.

In the student survey, however, a separate section was designed to gather information and opinions from the sizable number of students with disabilities. Those who did not have a disability did not continue with these items. The online survey website was tested for accessibility for these students and was found to be user friendly for everyone.

The survey was developed in several steps. First, prior research was reviewed on faculty knowledge, beliefs, and attitudes related to students with disabilities (e.g. Brockelman, Chadsey, & Loeb, 2006; Sowers & Smith, 2004). This review yielded several themes, such as knowledge about federal anti-discrimination laws, faculty attitudes toward students with disabilities, faculty understanding of and willingness to accommodate students, and other related issues. Next, prior published instruments were reviewed to assess faculty perceptions and served as a major source for item generation. For example, approximately 25 items developed by Houck et al. (1992), Wolman et al. (2004) and Murray, Wren, and Keys (2008) were adapted and incorporated into this survey instrument. Items were also developed based on specific data needs for a project sponsored by the college’s Academic Services Department.

The initial draft of the survey was divided into sections based on themes identified in this article’s review of the literature. Those themes, which were included in both the faculty and student surveys, included overall climate, beliefs about students with disabilities, inclusion in the classroom (including classroom question), capabilities of students with disabilities, reactions to such students, and familiarity with persons with disabilities. Faculty also were asked questions pertaining to related campus services, related professional development opportunities, the willingness to accommodate students with disabilities, and their knowledge about disability-related laws and information. Students were also asked questions pertaining to self-identification of a disability, disclosure, and subsequent treatment by others.

To evaluate the content validity of the survey instrument, the director of academic services and a small group of faculty and staff who are knowledgeable in this area reviewed the survey. These individuals revised the survey by adding missing content items and editing items for clarity, as well as adjusting rating scales. In addition, some of the items in the survey were negatively worded (and later reverse coded for scoring) to minimize extreme response bias and acquiescent bias.

Upon review of the literature, a pilot test of the survey was completed using a small sample of students and faculty. This group provided feedback on the instructions and items, and the time it took to complete the instrument. Their suggestions or changes were incorporated into the final survey.

Procedure

All participants completed the survey online using a survey website host. Faculty and students were recruited using a campus-wide email announcement inviting them to participate in the survey. They were told their participation was completely anonymous and voluntary.
Those faculty members and students who volunteered were asked to read an Informed Consent Form explaining the purpose of the study, which was an exploration of how faculty and students, both with and without disabilities, perceived the college environment. They then provided demographic information which was collected for reporting purposes only and confidentiality of their responses was guaranteed. Participants completed the survey in approximately 20 minutes.

Results

To address the primary hypotheses of interest in relation to the comparison of faculty and student perceptions of students with disabilities on campus, a series of independent t-tests (two-tailed) was conducted to compare survey responses from those two populations (faculty versus students with and without disabilities). Both of the student response categories were combined since the students with disabilities category was small. If significant differences resulted, analyses of variance (ANOVA) and post-hoc Tukey tests were used to further differentiate between students with and without disabilities.

This section will first focus on the comparison of those questions asked of both faculty members and students. The second part of the results section describes questions and responses specific to faculty members. The third section describes questions and responses specific to those students who self-identified as disabled.

Analyses contained different numbers of respondents due to missing data among the final participants. That is, survey sample sizes for each group varied for each item; faculty sample size ranged from 75 to 108, student sample size ranged from 253 to 366, and the students with disabilities sample ranged from 46 to 53. Two types of comparisons were made on the survey items that were common to both the student and faculty populations. The first comparison was between faculty and all students and the second comparison was between faculty, students with disabilities, and students without disabilities. It should be noted that the determination of students with disabilities was based on self-identification and voluntary disclosure.

Faculty and Student Comparisons

Descriptive statistics were computed for all of the survey items. For purposes of simplicity (due to small sample sizes in some response categories and no significant differences), the response categories “strongly agree” and “agree” are combined, as are the categories “strongly disagree” and “disagree.” All of the frequencies below are provided for the combined agree and strongly agree categories. All of the survey items were also analyzed with independent t-tests to make comparisons between the views for both populations (faculty members vs. all students). Only t-test analyses and one-way ANOVA that resulted in significant differences between the means are presented.

Overall Climate. In the first section of the survey, an independent t-test was conducted to examine differences in perceptions of the classroom climate for people with disabilities between faculty and students. Respondents used a 5-point rating scale, where 1 equaled very unfavorable, 3 equaled neutral and 5 equaled very favorable. Mean item ratings are shown in Figure 1. About 56.4% of the faculty versus 30.6% of the students rated the overall climate as being favorable or very favorable for people with disabilities. Results showed a significant difference in the perceptions of both populations ($t(472)=4.42, p<.001$). Faculty viewed the climate at the college for students with disabilities higher ($M=3.44$) than the students ($M=2.95$), although it should be noted that based on the rating scale, both populations viewed the climate as being neutral on the issue.

When the data separated out those students who had a disability, a one-way ANOVA also showed a significant difference in perceptions ($F(2, 471)=9.98, p<.001$). Tukey’s HSD post-hoc test indicated that students without disabilities ($M=2.93$) and students with disabilities ($M=3.04$) had similar views, but those views were significantly different from those of the faculty ($M=3.44$).

Beliefs about Students with Disabilities. For this section, respondents used a 5-point rating scale, where 1 equaled “strongly disagree” and 5 equaled “strongly agree.” Mean item ratings are presented in Figures 2 and 3. When asked to respond to the statement, “All students with disabilities receive accommodations to meet their needs in the classroom,” 67.3% of the faculty and 41.6% of the students agreed or strongly agreed with this statement. The t-test analysis ($t(401)=3.43, p<.001$) resulted in a significant difference, such that more faculty ($M=3.64$) than students ($M=3.28$) agreed with this statement. A significant ANOVA ($F(2,400)=7.76, p<.001$) showed that the faculty ($M=3.64$) and students with disabilities ($M=3.51$) felt
more similarly than students in general \((M=3.24)\). Over half of the faculty (59%) said they know which students have disabilities, as compared to only 23.4% of the students. Significant t-test results \((t(401)=6.74, p<.001)\) indicate a higher mean of 3.46 for faculty than for students \((M=2.63)\). The ANOVA \((F(2,400)=25.19, p<.001)\) showed that the students \((M=3.24)\) and students with disabilities \((M=3.51)\) felt more similarly than faculty \((M=3.64)\).

Similar but low percentages of faculty (10.8%) and students (12.3%) felt that students with disabilities are treated differently by classmates. When asked if students with disabilities are treated differently by faculty, again few faculty (18.3%) and students (12.3%) agreed with this statement. Low percentages of faculty (7.3%) and students (10.7%) felt that it is obvious to others if a student has a disability. Significant t-test results \((t(402)=3.37, p<.001)\) indicate a lower mean of 2.18 for faculty than for students \((M=2.51)\). The ANOVA \((F(2,402)=6.14, p<.01)\) showed that the students \((M=2.50)\) and students with disabilities \((M=2.53)\) felt more similarly than faculty \((M=2.17)\). Equivalent amounts of both populations (25% faculty and 25.2% of students) say they choose their words carefully if students with disabilities are in their presence. More faculty (25%) than students (4.5%) think that students with disabilities have learning problems. Significant t-test results \((t(402)=2.17, p<.05)\) indicate a significantly higher mean of 2.09 for faculty than for students \((M=1.87)\). About a quarter of the faculty (29.5%) and students (24.5%) think that students with disabilities are satisfied with their campus experience. Very few faculty (1.1%) or students (4.2%) reported that sitting next to a student with a disability causes anxiety. Similarly, very few faculty (3.2%) and students (3.8%) felt that students with disabilities are overly sensitive.

**Inclusion in the Classroom.** The first question asked respondents how often they have had students with disabilities in the classroom with them. Few (3.4%) of the faculty said all of the time, 61.8% said frequently, 32.6% said seldom, and 2.2% of the faculty said they have never had students with disabilities in their classroom. Few (4.4%) of the students said all of the time, 12.2% said frequently, 59% said seldom, and 24.4% of the students said they never had students with disabilities in their classroom. An independent t-test \((t(382)=8.18, p<.001)\) found significantly different means between the faculty \((M=2.66)\) and students \((M=1.97)\).

For the remaining items in this section, respondents used a 5-point rating scale, where one equaled “strongly disagree” and 5 equaled “strongly agree.” Mean item ratings are presented in Figure 4. There were no statistically significant differences between the means for faculty and students on any of these items. For the statement, “Teachers focus more on disabled students than the rest of the class,” 81% of the faculty and 75% of the students disagreed or strongly disagreed with this statement. Mean ratings were 1.97 for faculty, compared to 2.07 for students, and were not significantly different. Twenty-four percent of faculty and 16.3% of students felt it is harder for students with disabilities to concentrate on lessons. A one-way ANOVA showed a significant difference for this item \((F(2,381)=5.74, p<.01)\), where students with disabilities felt it was significantly harder to concentrate \((M=2.98)\) than faculty \((M=2.78)\) or students in general \((M=2.53)\). Very few faculty (3.3%) and students (7.1%) said it was distracting when students with disabilities are in the classroom. Similarly, very few faculty (5.5%) and students (1%) said that having students with disabilities in the classroom creates discipline problems. On the other hand, a large number of faculty (74.4%) and students (72.9%) felt that seeing students with disabilities teaches other students that being different is okay. Similarly, 76.7% of faculty and 78.7% of students said that seeing students with disabilities helps students to be more accepting of others.

**Capabilities.** Two questions asked respondents about the capabilities of students with disabilities outside of the classroom, using a 3-point scale where 1 equaled “less capable,” 2 equaled “just as capable,” and 3 equaled “more capable.” For the first question, 73.6% of the faculty and 86.8% of students reported that students with disabilities are just as capable as non-disabled students at meeting the demands of their academic program or major. Significant t-test results \((t(366)=2.42, p<.05)\) showed the mean for faculty \((M=1.76)\) versus students \((M=1.87)\) shows that faculty felt that some students are a little less capable of meeting program demands. Significant ANOVA results \((F(2,365)=3.02, p<.05)\) showed similar results, and the Tukey test revealed that students in general \((M=1.87)\) and the students with disabilities group \((M=1.85)\) felt significantly different than the faculty \((M=1.66)\). For the second question, 67% of the faculty and 75.5% of the students reported that students with disabilities are just as capable as non-disabled students at meeting the
In your opinion, what is the overall climate at the college for students with disabilities?

**Figure 1.** Overall climate for students with disabilities.

*Note: 1=Very Unfavorable to 5=Very Favorable; *p<.001

**Figure 2.** Beliefs about students with disabilities.

*Note: 1=Strongly Disagree to 5=Strongly Agree; *p<.001
I choose my words carefully if disabled students are around.

Disabled students have learning problems.*

Disabled students are satisfied with their campus experience.*

Sitting next to a disabled student causes anxiety.

Disabled students are overly sensitive.

Figure 3. Beliefs about students with disabilities.

Note: 1=Strongly Disagree to 5=Strongly Agree; *p<.05

Teachers focus more on disabled students than rest of class.

It is harder for disabled students to concentrate on lessons.

Non-disabled students get distracted when disabled students are in class.

Having disabled students in class creates discipline problems.

Seeing disabled students teaches others that being different is okay.

Seeing disabled students helps others be more accepting.

Figure 4. Inclusion in the classroom.

Note: 1=Strongly Disagree to 5=Strongly Agree
demands of a job in their field. There was no significant difference between mean responses from both populations (see Figure 5).

**Reactions.** The first question in this section asked how other students respond when they find out about a disability. Faculty thought that only 1.3% would respond with rejection, 46.3% would respond in a supportive manner, and 52.5% would respond as if the disability did not matter. Similar percentages were reported by students with 4.7% responding with rejection, 46.6% responding in a supportive manner, and 48.7% responding as if the disability did not matter. T-test results indicated no significant difference between mean responses for faculty and students.

For the remaining items in this section, respondents used a 5-point rating scale, where one equaled “strongly disagree” and 5 equaled “strongly agree.” Mean item ratings are presented in Figure 6. The majority (74.2%) of faculty and students (65.6%) disagreed or strongly disagreed with the statement, “Other students seem to resent the accommodations disabled students receive.” Subsequently, 73.5% of faculty, but only 51.1% of students agreed or strongly agreed that other students are receptive to accommodations needed in the classroom. Significant t-test findings (t(353)= 2.42, p<.05) showed higher means for faculty (M=3.74) than students (M=3.51). ANOVA and post-hoc tests showed that the mean for students with disabilities (M=3.45) was more similar to that of students in general. When asked if professors are receptive to such accommodations, 82.7% of faculty, but only 55.3% of the students agreed or strongly agreed. Significant t-test findings (t(350)= 3.98, p<.001) showed higher means for faculty (M=3.93) than students (M=3.53). ANOVA and post-hoc results showed that the mean for students with disabilities (M=3.62) was more similar to that for the students in general. Few faculty (12.5%) and students (8.1%) said that other students think that students with disabilities receive more than their “fair share” of college-provided services. Similarly, few faculty (12.8%) and students (14.9%) felt that students with disabilities are viewed by others as having an unfair advantage in taking tests. Finally, only 7% of faculty and 14.9% of students felt that other students resent special parking spaces for disabled students.

**Familiarity with Disabled Persons.** The last section of the survey related to one’s familiarity with people with disabilities. Mean item ratings are shown in Figure 7. The first question asked how often respon-

dents interacted with an individual with a disability. Only 4.8% of faculty said they have never interacted, while 34.5% said sometimes, 48.2% said often, and 8.4% said they always interact with a disabled person. About 3.6% of faculty gave a neutral response. To compare to students, 6.3% said they have never interacted with a person with a disability. Yet, 50.6% of students said sometimes, 19% said often, and 9.1% said they always interact with a person with a disability. About 15% of students gave a neutral response. Significant t-test findings (t(334)= 3.26, p<.05) showed higher means for faculty (M=3.20) than students (M=2.74), indicating greater amounts of interaction for faculty.

The second question asked respondents how familiar they are with people who have a disability. Of the faculty, 49.4% said they were extremely familiar with people who have disabilities since they or a close family member or friend is disabled, as compared to 40.4% of the students. About 32% of the faculty and 48% of the students said they were somewhat familiar with people who have disabilities since they have a distant family member or friend who is disabled. Approximately 18% of the faculty and 12% of the students said they were extremely unfamiliar with people who have disabilities since they do not know anyone directly who is disabled. The mean ratings for this question were not significantly different for these populations (M=1.69 for faculty, and M=1.71 for students).

**Separate Faculty Section**

Following the questions pertaining to both faculty and students, there was a series of questions designed to obtain additional information from faculty. Of the 88 faculty respondents to this part of the survey, 60 (68.2%) said they had limited experience with students with disabilities in the classroom. Twenty-four (27.3%) said they had a large amount of experience, while only four (4.5%) said they had no experience with students with disabilities in the classroom. Sixty-one or 71.1% of faculty members said they are familiar or very familiar with the services on campus which provide accommodations to students with disabilities, and 49 (56.3%) said they are satisfied or very satisfied with these services. When asked about professional development opportunities to learn how to work with students with disabilities, 15 (17.4%) said they have been offered such opportunities and did attend, 38 (44.2%) said they have been offered such services but could not attend, and 33 (38.4%) said those services have never been offered to them.
Willingness to Accommodate Students. Additionally, the survey contained 22 structured Likert-type items (where one equaled “strongly disagree” and 5 equaled “strongly agree”) concerning faculty members’ willingness to provide accommodations for those students with verified disabilities. Table 1 presents sample sizes, means, frequencies, and the percentages of responses for each item. Inspection of the means on this table shows that faculty in the sample tended to agree with 15 (68%) of the 22 items, were neutral on four (18%) of the items, and tended to disagree with three (14%) of the items. These results suggest that the majority of faculty are willing to provide various types of accommodations (e.g., record lectures, take proctored exams, use technology to complete tests) for students with verified disabilities.

Knowledge about Disabilities. The faculty survey also included 12 structured Likert-type items (where one equaled “strongly disagree” and 5 equaled “strongly agree”) concerning faculty members’ knowledge, history, and beliefs about students with disabilities. See Table 2 for the sample sizes, means, frequencies, and the percentages of responses for each item. For the two knowledge-related items [i.e., “I know what the term ‘disability’ means” and “I am familiar with section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (1990), and the implications for students with disabilities in institutions of higher education”], inspection of the means on this table shows that faculty in the sample tended to agree with 15 (68%) of the 22 items, be neutral on those items. That is, they understood the term “disability” but did not have a lot of familiarity with the disability-related laws. For the remaining 10 items, faculty tended to agree with three (30%) of the items, were neutral on two (20%) of the items, and tended to disagree with five (50%) of the items. It should be noted, however, that several of these items were opinions and worded in the negative direction; thus, disagreeing with the item indicated a desired or positive response. Those items are indicated by an asterisk on Table 2. If those items are “reverse scored,” faculty responses indicate that their history with students with disabilities has prompted them to believe that, in general, these individuals exhibit behaviors that will facilitate their success in school.

Separate Section for Students with Disabilities

Following the questions pertaining to both faculty and students, there was a series of questions designed to obtain information only from students with disabilities. Fifty-three student respondents reported having a disability.

Self-Identification. The percentages of the different types of disabilities in the student sample are shown in Figure 8. When asked in which area these students face the greatest obstacles, 50% said in the academic area, 28% in the physical, 6% in the social, and 16% in the psychological area. Almost three-quarters (74.5%) of the students said that they do not self-identify as having a disability to fellow classmates. About 61% said they do not self-identify as having a disability to their professors. Of those who do not self-identify, the following reasons were given: 5.7% perceive a hostile environment if they seek accommodations, 31.4% do not want to be labeled, 25.7% do not think accommodations would be helpful, 34.3% use compensatory techniques, 11.4% said they are not familiar with services offered at the college, and 37.1% gave “other” reasons. When asked if they talk to their professors to discuss their accommodations, approximately 44% said they never do at the beginning of the semester, while 64.4% said they sometimes or always do at some point during the semester.

Disclosure and Treatment. Students were asked additional questions related to their willingness to disclose their disability, using a 5-point “strongly disagree” to “strongly agree” likert scale. Table 3 provides the sample sizes, means, frequencies, and the percentages of responses for these 6 additional items. Many of these items confirmed their responses to the simple yes/no questions they responded to earlier about disclosure. In addition, about a quarter of the students agree or strongly agree that they are hesitant and fearful of approaching a professor about accommodations, and about one-third agree that their professors will think differently of them. It is clear from the disclosure items on the surveys that a substantial number of students with disabilities sometimes feel uncomfortable disclosing their disability to others for a variety of reasons.

Finally, students who have a disability responded to 11 likert-type items regarding their opinions and beliefs about treatment from others. Table 4 provides the sample sizes, means, and frequencies and percentages of responses for these 11 additional items. Again, five of these items were worded in the negative direction and the means indicated that respondents tended to disagree with these items. Their responses showed
Figure 5. Capabilities.
Note: 1=Less Capable, 2=Just as Capable, 3=More Capable; *p<.05

Figure 6. Reactions to Students with Disabilities.
Note: 1= Strongly Disagree to 5= Strongly Agree; *p<.05, **p<.001.
Figure 7. Familiarity with disabled persons.
Note: Frequency of Interaction 1=Never to 5=Always;
Familiarity of Persons 1=Extremely Unfamiliar to 3=Extremely Familiar; *p<.05

Figure 8. Type of disability (percentage of sample size 53).
Table 1

*Willingness to Provide Major Accommodations*

<table>
<thead>
<tr>
<th>Item</th>
<th>Sample Size</th>
<th>Strongly Disagree or Disagree</th>
<th>Neutral</th>
<th>Strongly Agree or Agree</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am willing to reduce the overall course reading load for a student with a verified disability.</td>
<td>71</td>
<td>52 (73.2%)</td>
<td>10 (41.1%)</td>
<td>9 (12.7%)</td>
<td>2.15</td>
</tr>
<tr>
<td>I am willing to allow a student with a verified learning disability to complete “extra credit” assignments.</td>
<td>76</td>
<td>40 (52.6%)</td>
<td>14 (18.4%)</td>
<td>22 (28.9%)</td>
<td>2.61</td>
</tr>
<tr>
<td>I am willing to allow a student to have a note taker or tape record lectures.</td>
<td>77</td>
<td>0 (0%)</td>
<td>0 (%)</td>
<td>77 (100%)</td>
<td>4.52</td>
</tr>
<tr>
<td>I am willing to grade students with verified learning disabilities on a different curve.</td>
<td>77</td>
<td>57 (74.1%)</td>
<td>11 (14.3%)</td>
<td>9 (11.7%)</td>
<td>2.06</td>
</tr>
<tr>
<td>I think it would be appropriate to allow a student with a verified disability to substitute an alternative course for a required course.</td>
<td>79</td>
<td>45 (57.0%)</td>
<td>17 (21.5%)</td>
<td>17 (21.6%)</td>
<td>2.46</td>
</tr>
<tr>
<td>I am willing to allow students with a verified disability to take proctored exams in a supervised location.</td>
<td>76</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>76 (100%)</td>
<td>4.53</td>
</tr>
<tr>
<td>I am willing to arrange extended time exams for students who have verified disabilities.</td>
<td>76</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>76 (100%)</td>
<td>4.50</td>
</tr>
<tr>
<td>I am willing to change the method of responding to exams for students with verified disabilities.</td>
<td>74</td>
<td>10 (13.5%)</td>
<td>11 (14.9%)</td>
<td>53 (71.6%)</td>
<td>3.80</td>
</tr>
<tr>
<td>I am willing to allow students with verified disabilities to use technology (e.g., laptop, calculator, spell checker) to complete tests even when such technologies are not permitted for use during testing.</td>
<td>77</td>
<td>16 (20.8%)</td>
<td>15 (19.5%)</td>
<td>46 (59.8%)</td>
<td>3.52</td>
</tr>
<tr>
<td>I am willing to allow students with verified disabilities to tape record lectures.</td>
<td>77</td>
<td>2 (2.6%)</td>
<td>1 (1.3%)</td>
<td>74 (96.2%)</td>
<td>4.39</td>
</tr>
</tbody>
</table>
(Table 1, Continued)

<table>
<thead>
<tr>
<th>Provision</th>
<th>Respondents</th>
<th>Yes (%)</th>
<th>No (%)</th>
<th>Don’t know (%)</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Providing testing or teaching accommodations to students with verified disabilities is unfair to students without disabilities.</td>
<td>79</td>
<td>61 (77.2%)</td>
<td>11 (13.9%)</td>
<td>7 (8.9%)</td>
<td>1.94</td>
</tr>
<tr>
<td>I am willing to spend extra time (in addition to normal office hours) helping a student prepare for an exam.</td>
<td>78</td>
<td>2 (2.6%)</td>
<td>9 (11.5%)</td>
<td>67 (85.9%)</td>
<td>4.12</td>
</tr>
<tr>
<td>I am willing to spend extra time meeting with students with disabilities to clarify and/or review course related content.</td>
<td>77</td>
<td>2 (2.6%)</td>
<td>5 (6.5%)</td>
<td>70 (90.9%)</td>
<td>4.19</td>
</tr>
<tr>
<td>I am willing to provide students with verified disabilities with copies of my overheads and/or presentations.</td>
<td>75</td>
<td>6 (8.0%)</td>
<td>9 (12.0%)</td>
<td>60 (80.0%)</td>
<td>4.04</td>
</tr>
<tr>
<td>I am willing to provide students with verified disabilities copies of my lecture notes or outlines.</td>
<td>76</td>
<td>17 (22.4%)</td>
<td>15 (19.7%)</td>
<td>44 (57.9%)</td>
<td>3.47</td>
</tr>
<tr>
<td>I am willing to provide students with verified disabilities with additional time to complete assignments.</td>
<td>75</td>
<td>11 (14.6%)</td>
<td>5 (6.7%)</td>
<td>59 (78.6%)</td>
<td>3.84</td>
</tr>
<tr>
<td>Making adequate teaching accommodations for students with verified disabilities in my courses is unrealistic given time constraints and other job demands.*</td>
<td>77</td>
<td>56 (72.8%)</td>
<td>14 (18.2%)</td>
<td>7 (9.1%)</td>
<td>2.12</td>
</tr>
<tr>
<td>I believe that I make individual accommodations for students as necessary who have disclosed.</td>
<td>74</td>
<td>3 (4.1%)</td>
<td>4 (5.4%)</td>
<td>67 (90.5%)</td>
<td>4.26</td>
</tr>
<tr>
<td>I am willing to extend the “due dates” of assignments to accommodate the needs of students with verified disabilities.</td>
<td>75</td>
<td>20 (26.7%)</td>
<td>16 (21.3%)</td>
<td>39 (52.0%)</td>
<td>3.32</td>
</tr>
<tr>
<td>Making adequate testing accommodations for students with verified disabilities in my courses is unrealistic given time constraints and other job demands.*</td>
<td>76</td>
<td>66 (86.8%)</td>
<td>6 (7.9%)</td>
<td>4 (5.2%)</td>
<td>1.92</td>
</tr>
<tr>
<td>I make a statement in class inviting students with disabilities to discuss accommodations with me.</td>
<td>74</td>
<td>25 (33.8%)</td>
<td>18 (24.3%)</td>
<td>31 (41.9%)</td>
<td>3.20</td>
</tr>
<tr>
<td>I include a statement in my syllabus inviting students to discuss accommodations with me.</td>
<td>73</td>
<td>17 (23.2%)</td>
<td>9 (12.3%)</td>
<td>47 (64.3%)</td>
<td>3.73</td>
</tr>
</tbody>
</table>

*These items were reverse coded for subsequent reporting purposes so that all items were worded in the positive direction
Table 2

Knowledge, History, and Beliefs of Faculty about Disabled Students

<table>
<thead>
<tr>
<th>Item</th>
<th>Sample Size</th>
<th>Strongly Disagree or Disagree</th>
<th>Neutral</th>
<th>Strongly Agree or Agree</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am sensitive to the needs of students with disabilities.</td>
<td>76</td>
<td>1 (1.3%)</td>
<td>4 (5.3%)</td>
<td>71 (93.4%)</td>
<td>4.26</td>
</tr>
<tr>
<td>I know what the term “disability” means.</td>
<td>73</td>
<td>3 (4.1%)</td>
<td>8 (11.0%)</td>
<td>62 (84.9%)</td>
<td>4.14</td>
</tr>
<tr>
<td>I am familiar with section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (1990), and the implications for students with disabilities in institutions of higher education.</td>
<td>77</td>
<td>24 (31.2%)</td>
<td>10 (13.0%)</td>
<td>43 (55.9%)</td>
<td>3.34</td>
</tr>
<tr>
<td>I think that some students are unaware that they have a disability.</td>
<td>72</td>
<td>8 (11.1%)</td>
<td>14 (19.5%)</td>
<td>50 (69.4%)</td>
<td>3.67</td>
</tr>
<tr>
<td>Disabled students are able to compete academically at the college level.</td>
<td>77</td>
<td>2 (2.6%)</td>
<td>6 (7.8%)</td>
<td>69 (89.6%)</td>
<td>4.16</td>
</tr>
<tr>
<td>Students use disabilities as an excuse when they are not doing well in my class.*</td>
<td>77</td>
<td>57 (74.1%)</td>
<td>15 (19.5%)</td>
<td>5 (6.5%)</td>
<td>2.04</td>
</tr>
<tr>
<td>I find that students with disabilities wait to talk to me until they are not doing well in the class and then I find it hard to believe that they really have a disability.*</td>
<td>74</td>
<td>48 (64.8%)</td>
<td>18 (24.3%)</td>
<td>8 (10.8%)</td>
<td>2.30</td>
</tr>
<tr>
<td>I find that students with disabilities wait to talk to me until they are not doing well in the class and then it’s too late to provide appropriate accommodations.*</td>
<td>72</td>
<td>42 (58.4%)</td>
<td>14 (19.4%)</td>
<td>16 (22.2%)</td>
<td>2.51</td>
</tr>
<tr>
<td>I find that students with disabilities do not use all of the accommodations for which they are eligible.</td>
<td>76</td>
<td>10 (13.1%)</td>
<td>26 (34.2%)</td>
<td>40 (52.7%)</td>
<td>3.42</td>
</tr>
<tr>
<td>I think of students differently after they approach me about a need for accommodations.*</td>
<td>73</td>
<td>53 (72.6%)</td>
<td>10 (13.7%)</td>
<td>10 (13.7%)</td>
<td>2.19</td>
</tr>
<tr>
<td>Some students take advantage of their accommodations, and may not really need them.*</td>
<td>74</td>
<td>49 (66.2%)</td>
<td>18 (24.3%)</td>
<td>7 (9.5%)</td>
<td>2.26</td>
</tr>
<tr>
<td>I’ve had students ask for accommodations, without any documentation.</td>
<td>73</td>
<td>31 (42.5%)</td>
<td>6 (8.2%)</td>
<td>36 (49.3%)</td>
<td>2.96</td>
</tr>
</tbody>
</table>

*These items were reverse coded for subsequent reporting purposes so that all items were worded in the positive direction
Table 3

Willingness to Disclose Disability

<table>
<thead>
<tr>
<th>Item</th>
<th>Sample Size</th>
<th>Strongly Disagree or Disagree</th>
<th>Neutral</th>
<th>Strongly Agree or Agree</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am reluctant to disclose the nature of my disability(ies).*</td>
<td>49</td>
<td>23 (47.0%)</td>
<td>13 (26.5%)</td>
<td>13 (26.5%)</td>
<td>2.76</td>
</tr>
<tr>
<td>I am hesitant and fearful of approaching a professor about my need for accommodations.*</td>
<td>49</td>
<td>29 (59.2%)</td>
<td>10 (20.4%)</td>
<td>10 (20.4%)</td>
<td>2.51</td>
</tr>
<tr>
<td>I’m afraid a professor will think differently of me if I tell him/her about my need for accommodations.*</td>
<td>49</td>
<td>25 (51.1%)</td>
<td>9 (18.4%)</td>
<td>15 (30.6%)</td>
<td>2.69</td>
</tr>
<tr>
<td>I don’t tell any other students that I need accommodations.*</td>
<td>49</td>
<td>19 (38.8%)</td>
<td>14 (28.6%)</td>
<td>16 (32.7%)</td>
<td>2.88</td>
</tr>
<tr>
<td>I talk to the professor at the beginning of the semester.</td>
<td>49</td>
<td>23 (46.9%)</td>
<td>5 (10.2%)</td>
<td>21 (42.9%)</td>
<td>2.94</td>
</tr>
<tr>
<td>I disclose to my professor only if I have to.*</td>
<td>49</td>
<td>15 (30.6%)</td>
<td>7 (14.3%)</td>
<td>27 (55.1%)</td>
<td>3.22</td>
</tr>
</tbody>
</table>

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that students with disabilities feel that other students generally treat them no differently than they would other students in the classroom. For the remaining items worded in the positive direction, respondents tended to agree or be neutral on the other five items. For example, over half felt that the accommodations they receive meet their needs in the classroom and over half were satisfied with their campus experience as a student with a disability. Almost half said that professors are familiar with referral procedures for students who need special help; similarly, half said that professors are willing to make course-related accommodations. See Table 4 for specific responses on each item.

**Discussion**

The results of this study indicate that faculty and students have different perceptions of the classroom climate for students with disabilities. More than half of faculty members view the climate as positive for students with disabilities compared to 30.6% of students. One factor that might influence students’ perception of classroom climate is that many students in the collegiate setting do not self-identify or request academic accommodations for a disability and therefore do not receive the type of support from faculty and support staff that could improve their college experience. Students and faculty differ on their views of classroom accommodations as well. More faculty than students believe that all students receive accommodations that meet their needs in the classroom; students view faculty as less receptive to accommodations than faculty view themselves. Another difference in perception relates to the nature of disabilities. More faculty members than students think that students with disabilities have learning difficulties.

Faculty and students do perceive the classroom environment similarly in that few faculty and students felt students with disabilities are treated differently by classmates or faculty. Both faculty and students have been exposed to students with disabilities in the
Table 4

Opinions and Beliefs of Disabled Students

<table>
<thead>
<tr>
<th>Item</th>
<th>Sample Size</th>
<th>Strongly Disagree or Disagree</th>
<th>Neutral</th>
<th>Strongly Agree or Agree</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>The accommodations I receive meet my needs in the classroom.</td>
<td>47</td>
<td>5 (10.6%)</td>
<td>16 (34.0%)</td>
<td>26 (55.3%)</td>
<td>3.62</td>
</tr>
<tr>
<td>Other students know about my disability.</td>
<td>46</td>
<td>11 (23.9%)</td>
<td>9 (19.6%)</td>
<td>26 (56.5%)</td>
<td>3.35</td>
</tr>
<tr>
<td>Other students treat me differently because of my disability.</td>
<td>47</td>
<td>26 (55.3%)</td>
<td>11 (23.4%)</td>
<td>10 (21.2%)</td>
<td>2.45</td>
</tr>
<tr>
<td>It is obvious to others that I have a disability.</td>
<td>47</td>
<td>25 (53.1%)</td>
<td>10 (21.3%)</td>
<td>12 (25.6%)</td>
<td>2.57</td>
</tr>
<tr>
<td>Other students choose their words carefully when they are in my presence.</td>
<td>47</td>
<td>36 (76.6%)</td>
<td>8 (17.0%)</td>
<td>3 (6.4%)</td>
<td>1.91</td>
</tr>
<tr>
<td>Other students think that students with disabilities have learning problems.</td>
<td>47</td>
<td>22 (46.8%)</td>
<td>13 (27.7%)</td>
<td>12 (25.6%)</td>
<td>2.62</td>
</tr>
<tr>
<td>I am satisfied with my campus experience as a disabled student.</td>
<td>47</td>
<td>11 (23.4%)</td>
<td>11 (23.4%)</td>
<td>25 (53.2%)</td>
<td>3.40</td>
</tr>
<tr>
<td>Sitting next to a student with a disability causes anxiety for other students.</td>
<td>47</td>
<td>34 (72.4%)</td>
<td>10 (21.3%)</td>
<td>3 (6.4%)</td>
<td>2.13</td>
</tr>
<tr>
<td>Other students think that students with disabilities are overly sensitive.</td>
<td>47</td>
<td>23 (48.9%)</td>
<td>9 (19.1%)</td>
<td>15 (32.0%)</td>
<td>2.72</td>
</tr>
<tr>
<td>Professors are familiar with referral procedures for students with learning problems who need special help.</td>
<td>47</td>
<td>9 (19.2%)</td>
<td>16 (34.0%)</td>
<td>22 (46.9%)</td>
<td>3.26</td>
</tr>
<tr>
<td>Professors are willing to make course-related accommodations.</td>
<td>47</td>
<td>13 (27.6%)</td>
<td>11 (23.4%)</td>
<td>23 (49.0%)</td>
<td>3.34</td>
</tr>
</tbody>
</table>

*These items were reverse coded for subsequent reporting purposes so that all items were worded in the positive direction.
classroom. Over three-quarters of students felt that instructors focus more on students with disabilities, yet very few faculty and students said it was distracting to have students with disabilities in class. About three-quarters of faculty and students felt that seeing students with disabilities teaches others about the benefits of difference and helps students be more accepting of others. Further, faculty and students report that other students are not resentful of students with disabilities who receive accommodations for their disability. Very few faculty and students thought students with disabilities receive more than their “fair share” of services or have an unfair advantage.

Other similar perceptions related to classroom climate include the perception of student ability and overall satisfaction. Over three-quarters of faculty and students felt that students with disabilities are just as capable of meeting demands of academic program or major. The same number of faculty and students felt that students with disabilities are capable of meeting the demands of jobs in their field. Faculty and students also reported similarities in their perceptions of student satisfaction. Only about a quarter of both faculty and students think students with disabilities are satisfied with the campus experience.

**Perceptions of Faculty**

Approximately three-quarters of faculty are familiar with services on campus; approximately half are satisfied with those services. Fewer than 20% of faculty members have attended professional development opportunities but over half report the availability of opportunities on campus. Most faculty members are willing to provide various types of accommodations (e.g., recorded lectures, extended test time, use of technology to complete exams) for students with documented disabilities. It can be surmised that faculty understand their legal obligations to provide accommodations to student with disabilities, but most do not report familiarity with disability-related laws. Overall, faculty responses indicate that their history with students with disabilities has prompted them to believe that, in general, students with disabilities exhibit behaviors that will facilitate their success in school.

**Perceptions of Students with Disabilities**

It is clear from the disclosure items on the surveys that a substantial number of students sometimes feel uncomfortable disclosing their disability to others, for a variety of reasons. Their responses showed that they feel that other students generally treat them no differently than they would other students in the classroom, but they express concern about faculty members’ perceptions. Over half felt that the accommodations they receive meet their needs in the classroom and over half were satisfied with their campus experience as a student with a disability. Almost half said that professors are familiar with referral procedures for students who need special help; similarly, half said that professors are willing to make course-related accommodations.

Perceptions of both faculty and students with disabilities support literature suggesting that faculty members are generally receptive to classroom accommodations such as recorded lectures and extended test time (Houck et al., 1992) but often lack knowledge about disability law (Dowrick et al., 2005). In contrast to previous research (Houck et al., 1992; Sowers & Smith, 2004), this study indicates that faculty members perceive students with disabilities to be just as capable as their peers.

The research has some important implications in regard to addressing the issues of students with disabilities in the college community. The difference between student and faculty perceptions of the climate for students with disabilities is significant in that faculty members are the primary influence on classroom climate. Increasing their awareness of the practices and behaviors that improve the climate for students with disabilities is essential. Because a full third of student respondents noted that they believe faculty members will think differently of them if they disclose a disability, providing faculty with specific guidance on navigating sensitive conversations is also appropriate. The data also suggest that an increased awareness of services available for those students with apparent and non-apparent disabilities is needed. Faculty members need support in understanding the impact of non-apparent disabilities, the resources available to assist students, and the specific practices that improve the climate for students with disabilities. Both faculty and students would benefit from increased development in the acceptance of others who are perceived as different from themselves. Students who feel accepted on campus will be more likely to persist in their studies and to seek help. This is important, given the finding that there needs to be an increased use of services by those students who need accommodations for existing disabilities. Additionally, there appears to be a need to
enhance the self-esteem of those who need accommodations in the classroom and perhaps gain assertiveness in advocating for themselves in the classroom. Ongoing education for faculty on disability laws is needed as well.

**Limitations and Future Research**

As with all survey research, the results of this study must be interpreted with caution. This study used a convenience sample of college students and faculty at a private women’s college who volunteered to participate. Therefore, the results cannot be generalized beyond the parameters of the self-selected sample. Also, a survey based on self-report measures, despite being tested for content validity, may not have been sensitive enough to capture all of the perceptions among the respondents. In addition, some of the questions, such as the students’ reasons for lack of disclosure to professors, were yes/no questions. Such close-ended questions inevitably shaped students’ responses; open-ended questions may have provided further insight into their thinking and rationale for their behavior. An additional limitation recognizes that these results reflect participants’ perceptions in one circumstance but not in all areas of interaction with individuals with disabilities. The study did not include any longitudinal data from a particular cohort of students with disabilities that could provide more information of perceptions throughout a student’s college experience. However, the information obtained from this sample is important in understanding what shapes faculty and student perceptions of students with disabilities.

Future research could entail a similar study with a male student sample and a longitudinal study to assess students from freshman through senior year. Additional research should include the academic support staff that has more face-to-face contact with students with disabilities and use a variety of qualitative and quantitative methods to examine specific content areas as it relates to disabilities and accommodations. Research that includes questions to assess other groups of students such as international students and minority students would enhance the understanding of students’ perceptions of “dissimilar” students on college campuses. The body of knowledge on students with disabilities could utilize a comparison in a study examining the actual use of services of students needing accommodations and trend these objective measures over time. Finally, comparing the responses of students with disabilities who choose not to access collegiate support services to students with disabilities who do access services on the subject of classroom climate would round out the discussion of student experiences and perceptions.

**Conclusion**

The knowledge about and perceptions of students with disabilities remains an area with unlimited research potential. From this study the data suggest that students with disabilities are accepted in the classroom and viewed as capable of meeting the demands of an academic program. Faculty are willing to provide various types of accommodations to meet student needs but know very little about actual disability-related law or policy. Students indicate they feel a climate of acceptance from faculty yet can feel uncomfortable about disclosing their disability to others, but have indicated no difference in how other students treat them in a classroom setting. Faculty and academic support staff can serve as sources of accurate information and can support students in need of accommodations to be successful in college. With increased study of this student population, more positive steps can be taken to create a supportive campus climate for those students with disabilities.

**References**


About the Authors

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Online Disability Accommodations: Faculty Experiences at One Public University

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Abstract
As the number of postsecondary students with disabilities in online courses continues to rise, it is important that faculty and their institutions continue to assess their ability to provide online accommodations. In this study, researchers examined the online accommodation experiences of faculty at one public university. Roughly 24% of faculty said they had made accommodations for students with verified disabilities and 15% reported experience with making online accommodations for students who stated they had disabilities but had not been verified through Disability Services. Due to their limited experience at making online accommodations, a majority (54%) of faculty were unsure whether they had the knowledge, technology, and support to handle online accommodations. Faculty recommended ongoing support and training for new and experienced faculty, and they also asserted that students needed assistance in increasing awareness of their own responsibilities and of available university resources.

Keywords: Online accommodations, students with disabilities, disability accommodations

In their ninth annual report on online learning in higher education, Going the Distance: Online Education in the United States, 2011, the Babson Survey Research Group and the College Board reported that “over 6.1 million students were taking at least one online course during the fall 2010 term,” and that “the ten percent growth rate for online enrollments far exceeds the less than one percent growth of the overall higher education student population” (Allen & Seaman, 2011, p. 4). A similar trend is reflected in a 2011 study by the Pew Research Center, which found that 89% of four-year public colleges and 60% of four-year private schools now offer online classes (Parker, Lenhart, & Moore, 2011). With the general increase in online students, the number of online students with disabilities is estimated to be significant (Roberts, Crittenden, & Crittenden, 2011). In a 2006-2007 study by the United States Department of Education (Parsad & Lewis, 2008), 49% of 2-year and 4-year Title IV degree-granting postsecondary institutions reported occasional requests for accommodations for students with disabilities in distance courses and 7% of the institutions reported frequent requests.

Although the explosion in online courses is well-documented and is viewed as a result of technology’s ability to meet both student demands for flexible access and higher education’s interest in increased student enrollment (Government Accountability Office [GAO], 2011), it is less clear how well postsecondary online education is responding to the needs of online students with disabilities. A survey of 344 full- and part-time faculty at one university found that 80.2% of faculty had not considered the needs of students with disabilities in their courses and 11.8% of faculty had “partially” taken these students’ needs into account (Bissonnette, 2006). Kinash, Crichton, and Kim-Ruppnow (2004) provided evidence to assert that “people with disabilities are among the least considered in the educational context of online learning” (p. 5). Gladhart (2010) outlined the various barriers that students with disabilities encounter with web-based course materials including uncaptioned videos, disorganized websites,
and course media unreadable by screen readers. Roberts et al. (2011) reported that 45.8% of students who had taken online courses perceived their disabilities to be a barrier to their success in online courses and 69.7% of students had not disclosed their disabilities to online instructors. In addition, a 2010 survey of 183 two- and four-year colleges and universities found that 17% of institutions had no formal policies ensuring online course compliance with the regulations of the Americans with Disabilities Act, and 58% reported that either individual faculty or academic programs or departments were the responsible parties for ensuring online ADA compliance (Green, 2010).

With faculty and academic departments expected to be at the forefront of online disability accommodations, faculty, universities, national centers, and others have developed recommendations and resources to assist faculty and their institutions with using accessible instructional materials, guaranteeing web accessibility, ensuring an inclusive educational environment, and applying Universal Design for Learning (UDL). Universal design reflects related approaches used by architects, engineers, and instructors who anticipate diversity in the population and proactively build inclusive features into the design process principles (Burgstahler, Corrigan, & McCarter, 2004; Case & Davidson, 2011; Georgia Institute of Technology, n.d.; Grabinger, Aplin, & Ponnappa-Brenner, 2008; Lewis, Yoder, Riley, So, & Yusufali, 2007; Murray, Wren, Stevens, & Keys, 2009; National Center on Accessible Instructional Materials, n.d.; Universal Design Education, n.d.; University of Connecticut, n.d.; W3C, n.d.).

Researchers have also studied faculty experiences with and attitudes toward students with disabilities and their need for accommodations. The vast majority of these studies, however, examine faculty attitudes and accommodations in face-to-face rather than online classes (Houck, Asselin, Troutman, & Arrington 1992; Leyser, Greenberger, Sharone, & Vogel, 2011; Jensen, McCrary, & Krampe, 2004; Kraska, 2003; Lombardi & Murray, 2011; Murray et al., 2008; Rao, 2004; Rao & Gartin, 2003; Vogel, Leyser, Wyland, & Brulle, 1999; Zhang et al., 2010.) Fichten et al. (2009) examined disabilities and e-learning problems and solutions, but significantly more research is needed on how higher education faculty are viewing and responding to students with disabilities in online courses and the accommodations they may need and request.

### Method

**Research Purpose and Question**

The authors work at a doctoral-granting public university in the upper Great Plains. Three of the four authors teach online courses and the fourth is the director of the campus Center for Instructional Learning and Technology. In their conversations about online accommodation practices on their campus, it became clear that, while institutional assistance was available to faculty for implementing online accommodations, virtually no information existed on the types and quantity of online accommodations being made by faculty, what kind of support faculty were receiving, and whether faculty felt able to make accommodations. By gathering this information they hoped to determine how the institution could better support faculty and students with disabilities in online courses. Their research question was, “What has been the experience of online instructors in making accommodations for students with disabilities?”

**Setting**

The university setting for the research project is an institution of 14,000 students located in one of the most rural states in the country. It offers undergraduate and graduate degrees in over 200 fields of study and has been offering online courses for 10 years. As of fall 2011, approximately 277 unduplicated online courses, both synchronous (taking place in real time) and asynchronous, were being taught each semester. Twenty-five departments offer 30 degrees and 12 certificate programs online.

**Study Participants and Data Collection**

During the spring 2011 semester, the university’s Center for Instructional Learning and Technology provided a list, obtained from the Registrar’s Office, of all faculty who were teaching online courses. The list contained 190 names of faculty from various disciplines across campus and representing all instructional statuses and ranks (non-tenured, tenured, and lecturer through full professor). After receiving IRB approval for the study, the research team sent an email to all 190 faculty and invited them to participate in the study by accessing a link to the online survey. Two weeks later, researchers sent a reminder to the participant list. The survey, distributed during one semester only, gathered no identifying information and took approximately 20
minutes to complete. Eighty-three faculty responded (a 43.7% response rate).

**Survey Instrument**

The survey’s introductory page explained that the purpose of the study was to better understand the types of accommodations made by faculty for online students and to provide the university with information that might further enhance its ability to provide accommodations in an online learning environment. The survey asked questions divided into three sections: Participant Information, Course-Specific Accommodations, and Perceptions of Accommodations. The first two sections contained fixed-response questions requesting participant demographics and accommodation experiences. The third section gathered responses to open-ended questions about perceptions of online accommodations. The university’s Disabilities Services for Students office helped the research team develop a list of disabilities/impairments and types of accommodations referenced in the survey. Table 1 contains the questions from each section.

**Data Analysis**

For the first two sections of the survey, frequencies were obtained and computed to percentages. These percentages were calculated using the number of respondents (n=83), not the original sampling frame of 190.

In the third section, researchers analyzed the four opened-ended questions using Braun and Clarke’s (2006) “thematic analysis” as a guideline – a process that “involves the searching across a data set--be that a number of interviews or focus groups, or a range of texts-- to find repeated patterns of meaning” (p. 86). This methodology places meaning and understanding at the root of analysis and promotes discursive interpretation of data as individual codes may cross reference multiples themes. Braun and Clarke stated that this approach is utilized to report experience, meaning, and the reality perceived by participants without limiting interpretation to themes supported by a pre-determined, potentially irrelevant, theory.

Data analysis began with a classification procedure known as open coding. Through constant comparison and reconceptualization, codes were then analyzed using a pattern coding method, called categorization, to identify categories from relationships amongst codes. Next, a search for patterns among these categories was employed to identify themes. Finally, the relationships that tied themes together were identified and labeled “assertions.” Data were initially analyzed by the second author, with the findings cross-checked by the third and fourth authors for the purpose of assessing internal reliability. As Mays and Pope (1995) have noted, assessments of a data set by more than one researcher and a comparison of rater agreement can enhance data analysis. The second author presented an analytic schema to the third and fourth authors that detailed how findings from the study were coded. The authors conducted a subsequent analysis by collapsing interrelated codes into the predetermined categories. Agreement was achieved when researchers recorded identical codes within the categories. Inter-rater agreement was calculated by dividing the number of agreements by the number of agreements plus disagreements. In cases of disagreement, the authors discussed their reasoning and came to consensus. Ultimately, the inter-rater agreement reached 92%, which is high. As Miles and Huberman (1994) suggested, 70% is an acceptable level of agreement for qualitative research.

**Results**

**Participant Information**

As can be seen in Table 2, 44.6% of respondents indicated that they considered their online teaching experience to be at an “advanced level,” 49.4% delivered online courses both synchronously and asynchronously, 24.1% taught online courses at both the undergraduate and graduate levels, and 75.9% taught only semester-based online courses.

**Course-based Accommodations**

In response to the question, “Have you made accommodations for any online students who have been verified by Disability Services to have functional limitations due to disabilities?” 77.8% (n=63) of respondents said no and 23.5% (n=19) said yes. In response to whether or not participants had made accommodations for any online students who had not notified Disability Services but who informed instructors that they had a disability (not including temporary disabilities, such as a broken arm), 84.6% (n=66) said no and 15.4% (n=12) said yes. Table 3 shows the total number of students (inclusive of both groups) faculty accommodated over their years of teaching online, along with the disability category. Table 3 also shows the types of accommodations made for each category.
Table 1

**Survey Questions**

Section 1. Participant Information
1. At what level do you consider your online teaching experience?
2. What online delivery method(s) have you used?
3. At what academic level do you teach online students?
4. Are your online courses semester, non-term, or both semester and non-term?

Section 2. Course-Specific Accommodations
1. Have you made accommodations for any online students who have been verified by Disability Services for Students to have functional limitations due to disabilities?
2. Have you made accommodations for any online students you know who had not notified Disability Services for Students but who informed you that they had a disability?
3. How many students and what types of accommodations have you made for various disabilities?
4. Did you contact any university support services to assist you with making accommodations? If so, which ones?
5. Have you referred one or more students to formal university support services in relation to disabilities/accommodations? If so, which ones?

Section 3. Perceptions of Accommodations
1. Have you seen requests for online accommodations change over time?
2. What thoughts do you have about accommodations in an online versus face-to-face environment?
3. Do you feel you have the knowledge, technology, and support to handle online accommodations? Explain your answer.
4. What recommendations do you have for how UND could improve its ability to provide online accommodations for students with disabilities/impairments?

In response to the question, “Did you contact anyone (such as a university service or a colleague or supervisor) to assist you with making accommodations?” five respondents who made accommodations for students who had been verified by Disability Services said no and 12 respondents said yes. Of these 12, nine (75%) contacted Disability Services, five (41.7%) contacted the Center for Instructional and Learning Technologies, three (25%) contacted Continuing Education (the entity responsible for online education), three (25%) contacted the Counseling Center, two (16.7%) contacted other university departments, and five (41.7%) received assistance from a colleague or supervisor. Percentages do not add to 100 since respondents were able to indicate multiple contacts they made.

Of the faculty who accommodated students who had not been verified by Disability Services, eight faculty responded that they had not contacted anyone for assistance and two faculty responded that, yes, they had contacted someone for assistance. Both of these individuals contacted Continuing Education. One also requested assistance from a colleague and one requested assistance from a supervisor.

The survey also asked participants if they had referred one or more students to university support services in relation to disabilities. Eight faculty who accommodated students who had been verified through Disability Services had referred students to Disability Services, four faculty referred students to the Center for Instructional and Learning Technologies, two faculty referred students to Continuing Education, four faculty referred students to the Counseling Center, and one faculty referred students to Student Health Services.

Of the faculty who had accommodated students who had not been verified by Disability Services, five referred students to Disability Services, two referred to the Center for Instructional Learning and Technologies, two referred to the Counseling Center, and one referred to Continuing Education.
Table 2

Participant Information

<table>
<thead>
<tr>
<th>Online Teaching Experience</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experience Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Novice (has taught no more than 2 online courses)</td>
<td>20</td>
<td>24.1</td>
</tr>
<tr>
<td>Intermediate (has taught more than 2 online courses but still needs assistance with setup and delivery)</td>
<td>19</td>
<td>22.9</td>
</tr>
<tr>
<td>Advanced (has taught several online courses and generally does not need assistance with setup and delivery)</td>
<td>37</td>
<td>44.6</td>
</tr>
<tr>
<td>Expert (provides formal mentoring and/or consultation to others)</td>
<td>7</td>
<td>8.4</td>
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<table>
<thead>
<tr>
<th>Online Delivery Methods Used</th>
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<tr>
<td>Synchronous</td>
<td>10</td>
<td>12.0</td>
</tr>
<tr>
<td>Asynchronous</td>
<td>32</td>
<td>38.6</td>
</tr>
<tr>
<td>Both synchronous and asynchronous</td>
<td>41</td>
<td>49.4</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Online Academic Levels Taught</th>
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</thead>
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<td>Undergraduate</td>
<td>30</td>
<td>36.1</td>
</tr>
<tr>
<td>Graduate</td>
<td>33</td>
<td>39.8</td>
</tr>
<tr>
<td>Both undergraduate and graduate</td>
<td>20</td>
<td>24.1</td>
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<table>
<thead>
<tr>
<th>Course Structure</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Semester based (including summer sessions)</td>
<td>63</td>
<td>75.9</td>
</tr>
<tr>
<td>Non-term</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Both semester-based and non-term</td>
<td>20</td>
<td>24.1</td>
</tr>
</tbody>
</table>

Perceptions of Accommodations

Instructors’ perceptions of online accommodations were measured using four open-ended questions. The responses to these questions were qualitatively analyzed and the findings from each of these questions are reported below.

Question 1

If you have been teaching online courses for several semesters, have you seen the request for accommodations from online students change over time (e.g., increase in the number of students requesting accommodations, increase in the type of disability)? Fifty-three instructors responded to this question. Their responses were classified into nine codes, and after categorization, two categories emerged. Three themes within these categories were identified, as well as one assertion that tied the themes together.

Theme 1. The majority (75%) had seen no change or had never been asked to make an accommodation in their online courses. Instructors who answered this question had identified themselves as “advanced” or “expert” in Section 1 of the survey based on the criteria of (a) having taught across several semesters, (b) generally not needing assistance with course design, or (c) being a mentor/consultant to others. Of the instructors who responded, 57% had never been asked to make an accommodation, while the remaining 43% have seen no change. Interestingly, some instructors reported an increase in student requests for an accommodation in face-to-face classes, but not online.

Theme 2. Instructors’ perceptions are that students choose to accommodate their own learning needs, choose not to request assistance, or choose not to self-accommodate. Regarding self-management of accommodations, an instructor supported this theme.
Table 3

Number of Students Assisted According to Primary Disability and Accommodations Made

<table>
<thead>
<tr>
<th>Disability Category</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Type of Accommodations Made</th>
</tr>
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<tbody>
<tr>
<td>Learning Disability</td>
<td>5</td>
<td>9</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>• Extended testing time</td>
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<tr>
<td></td>
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<td></td>
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<td>• Assignment extension</td>
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<td></td>
<td>• Sign language interpretation</td>
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<td>• Real time captions</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>• Assistive technology</td>
</tr>
<tr>
<td>Health Related/Chronic Impairment</td>
<td>10</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>• Extended testing time</td>
</tr>
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<td></td>
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<td></td>
<td>• Alternate testing format</td>
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<td></td>
<td></td>
<td></td>
<td>• Textbook in alternate format</td>
</tr>
<tr>
<td>Physical Impairment</td>
<td>10</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>• Assignment extension</td>
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<td>• Real-time captions</td>
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<tr>
<td>Mental Health Impairment (e.g., depression, anxiety)</td>
<td>12</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>• Assignment extension</td>
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<tr>
<td>Visual Impairment</td>
<td>11</td>
<td>4</td>
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<td>1</td>
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<td>0</td>
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by stating, “My experience has been that most students with disabilities have had many years of experience and have already found what resources exist.” Another concluded that disabilities can be hidden online because students are able to work through the content by taking the time they need. A few instructors asserted that distant students taking online courses do not request accommodations as much as on-campus students, nor do they access disability support services.

Some instructors have encountered students who wait and fail before they request accommodations. For example, one instructor commented, “They do not apprise you of a disability until they do not do well on an assignment. When they do disclose a disability, it’s with the request to redo their assignments coupled with explanations as to why they performed low.”

**Theme 3. Implementing UDL can accommodate students’ learning needs.** UDL is a research-based framework for curriculum delivery that reduces barriers in instruction through providing multiple means of representation, of action/expression, and of engagement (National Center on Universal Design for Learning, n.d.). UDL uses information from the fields of neuroscience to ensure that educational practices are responsive to the recognition, strategic, and affective networks of the brain (Center for Applied Special Technology, n.d.). UDL principles encourage implementation of basic proactive (rather than reactive) accommodation strategies as a general approach to all classes. Some instructors who responded to the survey were familiar with UDL practices and one instructor indicated that adhering to UDL principles would ensure responsiveness to students with disabilities: “I believe the understanding of universal design assists in this manner. When educators know these principles, accommodations are not necessary.” Some instructors provided examples of UDL practices that they have found to benefit all students such as increased time to work through content, larger print size, and detailed notes. Although these instructors did not provide evidence that these practices mitigated students’ need to formally request accommodations, instructors’ use of some UDL strategies may explain why students had not requested accommodations.

The relationship among these three themes is that students rarely request accommodations in online courses. Instructors who participated in this study had no or limited experience at making accommodations in the online setting largely due to minimal requests from students. More specifically, an item on the questionnaire asked instructors if they had made accommodations for any online students who had been verified as having a disability through the university’s Disability Services for Students; 77.8% had never made an accommodation. Figure 1 offers a visual display of findings from Question 1.

**Question 1:**
If you have been teaching online courses for several semesters, have you seen the request for accommodations from online students change over time (e.g., increase in the number of students requesting accommodations, increase in the type of disability)?

**Themes:**
1. The majority (75%) has seen no change or has never been asked to make an accommodation in their online courses.
2. Students either choose to accommodate their own learning needs or choose to not request assistance or do not self-accommodate.
3. Implementing universal design for learning can accommodate students’ learning needs.

**Assertion:** Students rarely request accommodations in online courses.

*Figure 1.* Analytic schematic for open-ended question about requests for accommodations.
Question 2

What thoughts do you have about accommodations in an online environment compared to accommodations in a face-to-face environment? Fifty-two instructors responded to this question. Their responses were classified into 15 codes, with three categories emerging after categorization. Four themes were identified, as well as two assertions that tied the themes together.

Theme 1. Although instructors have had limited experience, making appropriate accommodation for students is important to them. Instructors supported this with phrases such as, “every effort should be made” and “ensuring students with disabilities have needed accommodations.” One participant shared, “I strongly believe one should do as much as possible to make the learning environment comfortable and supportive to students no matter if it is an online or traditional classroom.”

Theme 2. Instructors are aware of resources available to them to assist with making accommodations. When asked specifically whether or not they contacted anyone to assist them with making accommodations, 52% reported they had sought assistance, with Disability Services for Students as the department with the most number of contacts.

For the instructors who had not made accommodations for students, they identified organizational resources they would seek assistance from such as the Center for Instructional and Learning Technologies and Disability Services for Students. They also knew of other faculty who could assist, mainly colleagues and faculty from the special education department.

Theme 3. When comparing online to face-to-face courses, instructors felt that identifying/verifying necessary accommodations is (or might be) harder in an online course. For some instructors, their basis was experience. One concluded, “Harder to notice the online. On campus it is relatively easy to identify the students who struggle with test anxiety, physical disabilities, etc. Much harder to identify online.” For others, their basis was perception, hypothesizing, “This is (as far as I know) not an easy thing to do for a single student in an online environment.” Contrary to this view, another participant noted, “I believe that many [disability needs] could be handled as well in an online environment much the same as face-to-face environment.”

Theme 4. The ease of making accommodations depends on the type of disability and the technology; meaning, some accommodations are more easily made online while others are harder. There was consensus amongst the instructors that the sensory disabilities (i.e., visual and hearing impairments) were the types of disabilities that were (or might be) more challenging to accommodate.

While some instructors denoted the limitations of technology for making accommodations in an online course (e.g., “The technology interface can make it more difficult.”), others recognized the benefits, remarking, “Given all of the technology available, I think it’s easier to make accommodations for students in an online format than it is in an on campus/face to face format.” Some instructors went so far as to assert that an online environment is a “friendlier setting for [students with disabilities]” and “it may be helpful… depending on the disability.”

The “easier” accommodations instructors were able to make, independent of university support services, were extending time to complete lessons and assignments and enlarging print size. One instructor stated how she produced materials in a variety of formats by utilizing technologies for providing students with recorded demonstrations and lectures, but had not thought of including transcription of what was stated during these recordings.

Relative to accommodating student with sensory disabilities, an instructor noted that when a student with a visual impairment enrolled in the course, the Center for Instructional Learning Technologies provided all the accommodations. This instructor “did not even know what was done.” While only one instructor denoted an actual experience, others provided anticipated challenges of accommodating students with said disabilities. Some instructors perceived accommodating students’ sensory needs as being time intensive, needing assistive technology (e.g., voice activated), and simply being “trickier.” Consequently, university support systems would have to be utilized.

Ascertained from these four themes is that instructors want to make appropriate accommodations using the resources available to them. However, some accommodations are more easily made online while others are harder. Although this question did not query instructors about specific accommodations they perceived as easier or harder to provide, a few chose to share their actual experiences while some provided examples of anticipated challenges. As a reminder, the majority of instructors had limited experience providing accommodations. Since the question asked
participants to give their “thoughts” rather than only experiences, instructors’ responses were rooted in both actual and hypothetical experiences. Figure 2 offers a visual display of findings from Question 2.

**Question 3**

Instructors were asked if they felt they had the knowledge, technology, and support to handle online accommodations. Of seventy-six respondents, 26 (34.2%) answered yes, nine (11.8%) answered no, and 41 (53.9%) answered not sure. Respondents were then asked to “Please explain why you answered “No” or “Not Sure” to the question about whether you have the knowledge, technology, and support to handle the online accommodations.” Forty-five survey participants responded and their responses were classified into nine codes, with two categories emerging. Three themes within these categories were identified, as well as an assertion that tied themes together.

**Theme 1.** The majority (53.9%) was “not sure” due to limited experience at making online accommodations. Most responded to this question simply stating that their uncertainty was directly linked to limited exposure (e.g., “I haven’t had to think about this.”) Others were a bit more reflective, stating, “…I’m not sure what my limitations are or if I have considered all possibilities,” and “How do I know if I have the right technology and support until I have a student who needs accommodations?”

**Theme 2.** “Handling” the accommodation is largely dependent on the type of request and the technology needed. Instructors were asked to identify the number of students they have made accommodations for across each of the disability categories, as well as to select the types of accommodations they made (see Table 3). Instructors had the most experience providing accommodations for students with learning disabilities. They felt they could “handle” the most common types of accommodations, which were extended testing time, assignment extensions, and copies of notes.

**Theme 3.** Due to limited experience, instructors would seek resources available to them on campus in order to make appropriate accommodations, especially for sensory disabilities. For the “more complex” accommodations, typically associated with students with sensory disabilities and assistive technology, “handling” would need to be done in collaboration with organizational and human resources who were more trained in these areas.

Interwoven in the aforementioned themes is one assertion. Due to limited experience, making appropriate accommodations would depend on the resources available to instructors, mainly for the type of disability and for the technology to utilize.

**Question 4**

What recommendation do you have for how the University could improve its ability to provide online accommodations for students with disabilities/impairments? Forty-nine individuals responded to this question. Ten codes were developed and later reorganized into two categories. Three themes were identified within these categories, with one assertion connecting them.

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**Question 2:**

What thoughts do you have about accommodations in an online environment compared to accommodations in a face-to-face environment?

**Themes:**

1. Making appropriate accommodations for students is important to instructors.
2. Instructors are aware of resources available to them to assist with making accommodations.
3. Identifying/verifying necessary accommodations might be harder in an online course.
4. The ease of making accommodations depends on the type of disability and the technology.

**Assertion:**

1. Instructors want to make appropriate accommodations using the resources available to them.
2. Some accommodations are more easily made online while others are harder.

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*Figure 2. Analytic schematic for open-ended question about perceptions of accommodations.*
Theme 1. Instructors recommended ongoing support, both human and organizational. For instructors who have sought both collegial (e.g., departmental peers) and organizational resources (e.g., Center for Instructional and Learning Technologies, Disability Services for Students) for making accommodations, they identified the utility and necessity for them; as a result, they denoted the importance of sustaining this infrastructure. For instructors who had not utilized these resources, ensuring they are available to them when needed is important.

Theme 2. Instructors recommended that training be available to both new and experienced instructors that targets expectations for making accommodations, types of accommodations, and resources available. Collectively, the “training” instructors recommended could be conceptualized as a 3-tiered system. For the bottom tier, guidelines should be available that delineate expectations, types of accommodations, and resources available. Some instructors wanted “standardized procedures” to be included and others wanted “examples” and “scenarios.” In addition, instructors stressed the importance of “clear” expectations that were temporally “realistic” for both the short and long terms. The middle tier should focus on outreach from experts in this area (e.g., Disability Services for Students, Center for Instructional and Learning Technologies, Special Education department). This was operationalized as focused, small group sessions for instructors at all levels of teaching experience. The top tier should be the one-on-one support to address specific, complex accommodations for individual students.

Theme 3. Instructors recommended making students aware of their responsibilities and of the availability of resources. Instructors wanted students to disclose their disabilities to ensure equity in their courses and equitable access to the supports and services available to them on campus (e.g., Disability Services for Students, the Counseling Center). There was agreement amongst instructors that students needed to become more aware that the responsibility to disclose their disabilities and to request accommodations was theirs. Unfortunately, instructors did not make any specific recommendations as to how this could be achieved.

In sum, instructors offered three recommendations. Although these three have distinctive qualities, there is an undercurrent that flows succinctly among them, which is both instructors and students need ongoing support.

Discussion

This mixed methods exploratory study examined the experiences and perceptions of faculty at one university related to making accommodations for students with disabilities in online classes. Of the 83 faculty who responded to a survey, 44.6% considered their online teaching experience to be at an “advanced level” and 49.4% delivered online courses both synchronously and asynchronously. Nineteen faculty (23.5%) had made accommodations for students who were verified by Disability Services as having a disability and 12 faculty (15.4%) had made accommodations for students who had disclosed their disabilities but had not

Question 3:
Please explain why you answered “No” or “Not Sure” to the question about whether you have the knowledge, technology, and support to handle online accommodations.

Themes:
1. The majority (53.9%) is “not sure” due to limited experience at making online accommodations.
2. “Handling” the accommodation is largely dependent on the type of request and the technology needed.
3. Due to limited experience, instructors would seek resources available to them on campus in order to make appropriate accommodations, especially for sensory disabilities.

Assertion:
Due to limited experience, making appropriate accommodations would depend on the resources available to instructors, mainly for the type of disability and for the technology to utilize.

Figure 3. Analytic schematic for open-ended question about handling online accommodations.
contacted Disability Services. Study participants indicated the disability categories for which they had most often made accommodations were learning disabilities, health related/chronic medical impairments, physical impairments, visual impairments, and mental health impairments. This finding reflects a similar frequency of postsecondary disability categories as reported in Tandy and Meacham (2009) and in Fichten et al. (2009), who also noted that students with health/medical impairments and psychological or psychiatric disabilities represent a newer trend in postsecondary education.

As mentioned, few respondents in this study had made accommodations in their online courses. It was their perception that students either chose to self-accommodate or, for whatever reason, chose not to request accommodations. This perception seems consistent with student reporting in the study by Roberts et al. (2011), in which 69.7% of students had not disclosed their disabilities to online instructors. Although student respondents in the 2011 study were not asked why they had not disclosed disabilities, the authors posited that students may not have known which accommodations to ask for or that students may have already been using assistive devices that mitigated their need for accommodations.

Although limited requests from students was the primary reason given by this study’s respondents for their minimal experience with making accommodations, instructors universally asserted that they were receptive to making online accommodations. This finding is also consistent with previous studies examining faculty attitudes, even though most of these studies examined accommodations in face-to-face classrooms (Leyser & Greenberger, 2008; Murray, Wren, & Keys, 2008). Respondents acknowledged, however, that some disabilities (such as visual and hearing impairments) were, or might be, more challenging to accommodate than others. Interestingly, faculty who made accommodations for students whose disabilities had been verified by Disability Services for Students were more likely to request assistance in making these accommodations than were faculty who had made accommodations for students whose disabilities had not been verified. This may indicate that the disability verification process positively impacts the likelihood of faculty requesting accommodation assistance.

Due to no or limited experience with accommodations, 65.7% of respondents felt that they did not have or were “not sure” if they had the knowledge, technology, and support to make online accommodations. They did, however, articulate specific recommendations for how the university could support instructors. These recommendations included regular distribution of guidelines or “standardized procedures” related to online accommodations, small-group informational sessions by on-campus accommodations experts, and one-on-one support for individual faculty. Respondents also asserted that they wanted students to disclose their disabilities so that instructors could ensure equity in their classes, but they believed students needed to be made more aware that such disclosure and the commensurate request for accommodations was their responsibility.

**Question 4:**
What recommendations do you have for how the university could improve its ability to provide online accommodations for students with disabilities/impairments?

**Themes:**
1. Instructors recommend ongoing support, both human and organizational.
2. Instructors recommend there be training available to both new and experienced instructors that targets expectations for making accommodations, types of accommodations, and resources available.
3. Instructors recommend making students aware of their responsibilities and availability of resources.

**Assertion:**
Both instructors and students need ongoing support.

Figure 4. Analytic schematic for open-ended question about recommendations.
Limitations

This study is limited in that it addresses faculty experiences and perspectives at only one institution. In addition, the study was not based on a random sample, and the respondents may not be representative of the larger group of online instructors at the university. Finally, the data collected are in need of validation since it is only based on self-reports that may reflect socially-desirable responses.

Recommendations and Future Research

Based on this study’s findings, the authors believe that colleges and universities would benefit from an intentional and comprehensive “tiered model” of information and support for students and faculty. This tiered model would involve:

**Tier 1:** Promotion and increased availability of a series of basic educational materials outlining legal obligations, approaches to, supports for, and answers to FAQs about online accommodations. These materials would include hard-copy brochures, websites, and asynchronous webinars distributed and/or publicized on a routine basis via academic and student affairs venues. Online faculty should also be strongly encouraged to include a statement in their syllabi inviting students with disabilities to discuss accommodation needs early in the semester with faculty and asking students to register with Disability Services if appropriate. The Disability Services for Students office at the authors’ university provides a recommended statement for syllabi, and the office also emails all faculty a reminder of the services it offers (to faculty and students), but it is unclear how many faculty use the statement or the services;

**Tier 2:** Routine face-to-face or online synchronous discussion between instructional technology staff and/or experienced faculty and individual academic and student affairs departments. Centers for Instructional Learning Technologies could also sponsor campus-wide, small group information sessions about online accommodations and provide an online classroom as a format for faculty and student information sessions.

**Tier 3:** Individual outreach to and sessions by Centers for Instructional Learning Technologies with online instructors to enhance their skills in reaching out to students, offering and managing accommodations, and improving their universal design abilities.

Future research directions for this and other universities would include student surveys and focus group interviews with online students to determine: the extent to which students with disabilities feel comfortable requesting accommodations; why students do not disclose a disability in the online setting; if students with disabilities are aware that the university can offer accommodations for online courses; and student perceptions of what it means to contact Disability Services for Students (i.e., any potential stigma issues). Additional research is also needed to determine whether faculty, and the university in general, are providing effective supports for students and faculty around online accommodations (along with identifying specific accommodations being used), as well as what additional supports, attitudes, or behaviors are needed to ensure faculty and student success in the context of teaching and learning.

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Students’ Perceptions of a Postsecondary
LD/ADHD Support Program

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Abstract
Colleges are seeking ways to better serve the growing population of students with learning disabilities (LD) and/or Attention Deficit Hyperactivity Disorder (ADHD). In making decisions about how to best facilitate students’ success, it is important to listen to their voices as they describe their experiences and offer unique insights. The researchers interviewed 14 undergraduates with LD and/or ADHD enrolled in a fee-based support program at a private liberal arts college. The interviews explored students’ perceptions of outcomes of their participation in the program and factors they believed contributed to these outcomes. Students reported growth in self-authorship and self-determination, greater metacognitive awareness, improved academic skills, and changes in their perceptions of themselves as learners and their learning differences. They attributed these positive outcomes to the mentoring relationships they established with professors in the program and the metacognitive conversations they had with them. Students’ stories confirm the value of a metacognitive, dialogic approach; the significance of caring, supportive relationships with mentors; and the importance of integrating the emotional and cognitive domains in postsecondary support programs for students with LD/ADHD.

Keywords: Learning disability, metacognition, self-authorship, self-regulation

The inclusion of significant numbers of students with learning disabilities (LD) in higher educational settings is directly attributable to late twentieth century legislation that changed the face of education for students of all ages in the United States (Brinckerhoff, Shaw, & McGuire, 2002; Getzel, Stodden, & Briel, 2001; Scott, 1994). The number of students with LD in higher education has increased tenfold since the legislative reforms of the 1970s and has more than doubled since additional mandates were implemented in the 1990s (NCES, 2000).

Despite these gains in enrollment, students with LD and/or Attention Deficit Hyperactivity Deficit (ADHD) have lower persistence rates compared to students without disabilities. According to 2009 data from the NCES (2000), 28% of students with LD enrolling in postsecondary study in 2003-2004 had attained a bachelor’s degree within six years (Radford, Lutz, Wheeless, & Shepherd, 2010). Similarly, 24% of students with ADHD in the same cohort completed a bachelor’s degree within six years (Hunt-White, 2011). In contrast, Radford and colleagues (2010) cite NCES data that indicated 50% of students without disabilities completed a bachelor’s degree within the same time frame. Despite the discrepancies between postsecondary degree completion rates of non-disabled students compared to peers with LD and/or ADHD, Vogel and Adelman (1992, 2000) reported that those students who accessed accommodations and supports persisted at similar rates as their non-LD peers.

Over the last forty years, the postsecondary LD support field has evolved in a number of ways. In a nationwide survey of relatively early postsecondary programs for students with LD/ADHD (Bursack, Rose, Cowen, & Mohd, 1989), the majority of service providers ranked access under Section 504 as their most important goal. Since then, LD support practitioners’ objectives on some campuses have extended beyond accommodation provisions to more comprehensive roles as advocates who refer students to available campus resources. More recent advances in the field of universal design for instruction (UDI),
which emphasizes practices that proactively provide equal access to postsecondary education for as many students as possible, have great implications for LD support programs. “UDI encapsulates a significant paradigm shift in instruction from making exceptions for ‘different’ learners to anticipation and planning for student diversity as the norm” (Scott, McGuire, & Shaw, 2003, p. 377). As higher educational settings incorporate the principles of UDI, LD support providers can promote and utilize this new paradigm in a manner that specifically enhances the learning experience for students with LD/ADHD.

**Purpose of the Study**

The purpose of this qualitative study was to explore the perceptions of students regarding outcomes of their participation in a fee-base postsecondary LD support program. The study was conducted at a small four-year college as one component of a comprehensive program evaluation that involved 300 participants. The broader evaluation included measures of metacognitive growth as well as analysis of anonymous web-based program evaluations completed by students at the end of each semester over a ten year period.

Founded in 1970, this comprehensive LD support program provides strategic learning instruction for students with language-based LD and/or ADHD. The program, which espouses a holistic, strength-based transformative learning approach, serves approximately 25-30% of each incoming first year class. Participants enroll in a two-semester sequence of credit bearing, pass/fail courses during their first year. Courses are taught by learning support professors with extensive backgrounds in learning disabilities. Students meet with these professors in small groups and/or in individual sessions for 150 minutes per week, with a focus on learning outcomes that fall into three categories: (1) personal agency, (2) cognition, and (3) communication. After their first year, students can elect to continue their participation in the program but no longer receive academic credit. During all phases of their participation, students engage in metacognitive conversations and activities with professors to help them define and explain their preferred learning styles, strengths and challenges; identify and apply learning strategies matched to their learning profiles; and monitor and evaluate strategy use. The skills taught relate to content and tasks assigned in other courses in which students are enrolled. Kincannon, Gleber, and Kim (1999) established the efficacy of “embedded” skills instruction, or the teaching of strategies and their use related to specific course content.

Program objectives, which include cognitive and affective personal outcomes such as self-reflection, self-knowledge and personal agency, are not easily quantifiable. Additionally, the effectiveness of the varied, complex interventions used to achieve these outcomes is difficult to evaluate. However, programmatic effectiveness and accountability demand assessment of these phenomena. A qualitative approach provides a mechanism to include student voices in program assessment. While numerous studies have examined the outcomes of students with LD/ADHD in higher educational settings, there is little research that explores students’ perspectives in depth (Dowds & Phelan, 2006; Parker & Boutelle, 2009; Parker, Hoffman, Sawilowsky, & Rolands, 2011; Reis, McGuire, & Neu, 2000).

This study was designed to elicit students’ perceptions of the personal outcomes they experienced as a result of their participation in the program and to determine the aspects of the program they found helpful or unhelpful to them.

**Literature Review**

**Culture of Care**

Though multiple and varied strategies are employed in this LD support program, one consistent, critical factor is the unique mentoring relationship between professors and their students. A theme that emerges in the transition literature is the importance of contact with a trusted campus support person to foster success. Trust is built through a “culture of care,” which refers to an educational climate in which teachers build effective relationships with students to help them succeed (Noddings, 1984). According to Collinson and Killeavey (1999), “Knowing students is a necessary condition for caring, respect is an indispensable foundation for establishing classroom relationships, and an ethic of care is a prerequisite for effective teaching and optimal learning” (p. 349).

While a culture of care can benefit all students, undergraduates with LD/ADHD often demonstrate a particular need to make strong associations with LD specialists who know them personally and care about them (Adelizzi, 2010; Corey, 2003; Finn, 1999; Goss, 2010; Mytkowicz, 2010; Orr & Hamig, 2009; Preece, 2010).
Rice, Beecher, Roberts, & Stearns, 2003). In a recent review of the literature on effective strategies for working with college students with LD, Orr and Hamig (2009) concluded, “Instructor empathy and approachability are characteristics that appear to hold particular value to students with LD” (p.192). The caring relationship is at the “core of good teaching because it is predicated on high standards, rigorous demands, and respect for students, their identities, and their families” (Collinson & Killeavey, 1999, p. 100).

A culture of care requires faculty to take risks and shift from traditional paradigms of teacher as leader to teacher as facilitator. Palmer (1998) asserts that taking this kind of risk involves courage on the part of the teacher. In a trusting, collaborative relationship, professors can share their own learning challenges and model successful behaviors. According to Frego (2006), this sharing helps students acknowledge their fears, reduce anxiety, and acquire coping mechanisms that can contribute to success in learning.

**Transformative Learning**

Transformative learning theory provides a philosophical foundation that is particularly well-suited to initiatives that focus on the change process in learners. Mezirow (1994) defines learning from this perspective as the “…process of construing and appropriating a new or revised interpretation of the meaning of one’s experience as a guide to action” (p.222). Through critical reflection, learners alter their meaning systems and perspectives. The culmination of the process occurs when the individual acts on the new perspective, making choices and engaging in actions that reflect the new understanding. College is a time when students often undergo significant changes in their world views, making transformative learning particularly germane to this period in young adult development (Baxter Magolda, 2001, 2009; Brock, 2010; Kegan, 1994).

Discourse of various types, including dialogue, conversation, and discussion is at the core of transformative learning methodology (Cranton, 2006; Daloz, 1999; Fisher & Torbert, 1995; Mezirow, 1991). The literature on conversation and dialogue provides insight into the power of this pedagogical tool. McDrury and Alterio (2003) note that learning conversations help students construct knowledge, develop theories based on their experiences, form connections and relationships with others, evaluate themselves, and gain self-awareness.

**Self-authorship, Self-agency and Self-determination**

One of the goals of transformative learning is to encourage the development of self-authorship and self-agency. Baxter Magolda (2009) defines self-authorship as “the capacity to internally generate beliefs, values, identity, and social relations” (p. 8). Ignelzi (2000) recommends that faculty provide structured, scaffolded learning opportunities that can guide students toward self-authorship and the development of their own ideas. Grounding learning in student experiences is important in fostering the self-authorship that colleges hope to nurture (Baxter Magolda, 2009).

In addition to self-authorship, the development of self-agency is critical. One of the important goals of the LD support practitioner is to lead the student ultimately to independence, self-reliance, and self-advocacy (Brinckerhoff et. al., 2002; Janiga & Costenbader, 2002). LD support providers frequently report that students lack self-advocacy skills as they enter college. Years of parental involvement and strict special education regulations combine to make students dependent on others and less aware of their own learning needs (Janiga & Costenbader, 2002). “Individuals with LD often exhibit lower self-esteem, higher anxiety, and poor interpersonal skills, resulting in difficulty with self-advocacy and social interactions, necessary skills for success in college” (DaDeppo, 2009, p. 123). Students themselves also recognize their lack of self-advocacy skills as a barrier to success (Lehmann, Davies, Gray & Laurin, 2000) and admit that they are not able to communicate their needs for support and accommodations effectively (Cawthon & Cole, 2010).

Research has demonstrated that self-authorship, self-agency, self-advocacy, self-esteem, and self-determination are important to the success of individuals with LD in college and the workplace. Raskind, Goldberg, Higgins, and Herman (1999) identified a number of “success attributes” associated with successful adults with LD including self-awareness, proactiveness, perseverance, appropriate and realistic goal-setting, use of support systems, and development of coping strategies to deal with stress, frustration and anxiety. Many studies have found that self-determination is an
important factor in the success of college students with LD/ADHD (Anctil, Ishikawa, & Scott, 2008; Evans-Getzel & Thoma, 2008; Field, Sarver, & Shaw, 2003; Parker et al., 2011; Sarver, 2000; Thoma & Evans-Getzel, 2005). These studies suggest that higher levels of self-determination and self-regulation contribute to student success by allowing them to set goals, plan and organize their actions, advocate for themselves, experience a sense of empowerment and academic competence, and meet the demands of the college environment with autonomous, self-directed behavior. Service providers who foster these attributes can help students with LD/ADHD develop characteristics that can translate into successful academic performance (Brinkerhoff, McGuire, & Shaw, 2002; Sarver, 2000; Parker et al., 2011).

Development of Effective Learning Strategies

In addition to attaining the attributes of self-authorship, self-agency, self-advocacy, and self-esteem, college students with LD/ADHD must also acquire effective and individualized learning strategies (Allsop, Minskoff & Bolt, 2005; Brinkerhoff et al, 2002; Norlander et al., 1990). LD support service providers become crucial allies in assisting students to learn strategies that can provide success in college coursework and employment and personal learning demands after college. In fact, strategy instruction has proven more effective than remediation of the LD (Raskind et al., 1999; Ruban, McCoach, McGuire & Reis, 2003). Butler (1998) suggests that modeling self-regulated learning strategies alone is not enough to impact study patterns among college students with LD. Students also need to learn how to analyze tasks; evaluate how they learn; and choose, assess and adapt strategies according to need.

Development of metacognitive awareness is also crucial for effective learning (Flavell, 1987). Metacognition involves knowledge about learning, about self as a learner, and about effective learning strategies, as well as the ability to monitor, regulate and control one’s thinking and learning (Borkowski, Chan, & Muthukrishna, 2000; Pintrich, 2002). Thus, instruction in metacognitive strategies is essential in developing students’ self-awareness and helping them build a repertoire of executive functioning skills such as planning, reflecting, monitoring and evaluating. A number of sources depict the importance of metacognitive strategy instruction for students with LD and/or ADHD (Brinkerhoff et al., 2002; Fox & Ijiri, 2010; Ruban et al., 2003). When service providers help students identify individual strengths and understand how LD/ADHD impacts their learning, students can improve their self-regulated academic performance (Brinkerhoff et. al., 2002; Ruban et. al., 2003).

Method

Research Design

The research was designed to explore two major questions. Research Question 1 was, “What do the individual participants perceive as the personal outcomes of their participation in the LD/ADHD support program?” Closely related to that, Research Question 2 was, “What aspects of the program did students identify as helpful or unhelpful to them?”

A qualitative approach was well suited for this study, which explored outcomes of participation for a unique group of students in a specific fee-based, comprehensive postsecondary LD/ADHD support program. Denzin and Lincoln (2005) note that, by using a qualitative research approach, “researchers can isolate target populations [and] show the immediate effects of certain programs on such groups” (p.26). Harper and Kuh (2007) point out that qualitative methods are particularly useful for research focusing on the experience of individual students in particular contexts.

The qualitative interview was chosen as the primary data collection method because it allows for clarifying ambiguities, probing, prompting, and following up on unexpected themes that may be suggested spontaneously by the participant (Guba & Lincoln, 1988; Marshall & Rossman, 1989). Interviews provide access to that which is not directly accessible through other means such as questionnaires and surveys (Seidman, 1991). The qualitative interviews added a unique data collection source to the broader program evaluation process, which primarily utilized quantitative data.

Participants

The researchers conducted semi-structured, in-depth interviews with 14 participants in the LD support program who were currently juniors or seniors at the college and who had completed between one and six semesters in the LD support program. The researchers chose to interview juniors and seniors because of their greater experience in both the program and in postsecondary study, which provided access to more informed
perspectives than interviews with first or second year students. Invitations to participate were sent three times by email to all juniors and seniors currently or previously enrolled in the program (n=200). Sixteen respondents, all of whom were currently enrolled in the program, subsequently volunteered to participate and 14 followed through. While this is a relatively small number of participants, it is typical of qualitative studies in which the researcher’s goal is not to make generalizations that apply to a large group but, rather, to explore in depth the experiences and perceptions of unique individuals (Cresswell, 2007; Denzin & Lincoln, 2005; Seidman, 1991). It is important to note that the participants were all persisting toward graduation and in good academic standing, with GPAs of at least 2.7 out of a 4.0 scale. Additionally, it is notable that the types of students who would volunteer for such a study may be a select and successful group, as no students who had low GPAs volunteered to participate.

Eight males and six females, ranging in age from 20 to 24 and each with documented LD and/or ADHD or both, completed the interview. All had Wechsler Adult Intelligence Scale IQ scores within the average to above average range. While socio-economic status was not considered, all participants were enrolled in a private college and participated in a fee-based LD support program. Participant characteristics, including GPA, are described in Table 1.

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Gender</th>
<th>Age</th>
<th>Diagnosis*</th>
<th>Year</th>
<th>Semesters in Program</th>
<th>GPA</th>
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<tr>
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<td>5</td>
<td>3.63</td>
</tr>
</tbody>
</table>

* LLD= language-based learning disability; NLD = nonverbal learning disability; ADHD = Attention Deficit Hyperactivity Disorder
Nine different LD support faculty members had worked with or were currently working with individual students included in the study at the time of the interview. To avoid bias, neither researcher interviewed students with whom she had worked. Professors in the program were not informed about their students’ participation in the study to assure students that their responses would have no impact on grades.

**Procedure**

A semi-structured interview format was used so that interviewers were guided by but not limited to a basic protocol of pre-determined, open-ended questions (see Appendix). Since one goal of the support program is to effect transformative change that will contribute to success in college, questions focused on whether and how such change occurred and to what extent participation in the program may have contributed. The researchers reviewed the revised Learning Activities Survey ([LAS]; King, 2009), which assesses transformative educational experiences for students in higher education, and modified some questions for inclusion in the interview protocol.

During the interviews, researchers also used probes, asked for examples, queried specifics, and rephrased similar questions in different ways to encourage further exploration and fuller expression of memories. Since some participants have expressive language disorders, thorough rechecking and clarification of their responses through multiple querying techniques was essential.

The researchers recorded, transcribed and coded the interviews. To reduce bias and check accuracy of the coding, they collaborated in assigning codes (investigative triangulation) to the transcriptions and in interpreting the data. Coding involved successive steps as the data was revisited, reorganized, and clarified resulting in new insights and interpretations. Initially, each researcher performed a review of the interview transcripts to determine general themes. The researchers then shared their findings, discussed similarities and differences in theme identification, and agreed upon major themes and subcategories. The researchers shared their files and minor adjustments were made to the coding scheme based on their findings (Table 2). Similar categories were grouped into larger themes as the coding schemes were refined and adjusted.

<table>
<thead>
<tr>
<th>Major Themes</th>
<th>Sub Categories</th>
</tr>
</thead>
</table>
| Student perceptions of LD support program pedagogy | • Climate of safety and care  
• Significance of the professor-student relationship  
• Importance of conversation in developing metacognition |
| Student perceptions of outcomes associated with participation in the LD support program | • Self-Authorship  
• Self-Agency  
• Self-Determination  
• Changing/reframing view of LD/ADHD  
• Improved academic skills and learning strategies  
• Metacognition |
Findings

Student Perceptions of LD Support Program Pedagogy

This study, conducted as one component of a broader program evaluation, was intended to explore student perceptions of the LD/ADHD support program in which they were enrolled. This is a unique program in which faculty members with extensive background in learning disabilities provide instruction and personal support to students. Not surprisingly, many of the students’ comments therefore refer to these LD support program professors. The major aspects of the program identified by students as helpful to them include the climate of safety and care, the significance of the professor-student relationship, and the importance of conversation in developing metacognition.

Climate of safety and care. The literature maintains that an educational climate of care, safety, and respect contributes to students’ learning and development (Collinson & Killeavey, 1999; Daloz, 1999; Orr & Hamig, 2009; Peart & Campbell, 1999; Preece et al., 2003; Talbert-Johnson & Beran, 1999; Tebben, 1995). Many participants noted the sense of safety and the caring atmosphere that allowed them to be comfortable and open with their LD support program professors. As Ted (a pseudonym) put it, “There’s this really good atmosphere of trust when you go in there. I like that I can be open.” Sara noted that she appreciates the way her professor treats her and added, “It makes me trust her, and it makes me calm.” Melissa stated, “I was never made to feel uncomfortable. She was like a guide, and I could always feel comfortable asking her something that I would have felt dumb asking before.” The importance of trust and approachability was also found in studies reviewed by Orr and Hamig (2009) that looked at effective postsecondary teaching practices for students with disabilities.

The students in this study clearly assert the importance of what Rogers calls “positive regard” (Rogers & Frieberg, 1994). In discussing his LD support program professor, Phil stated, “There is a level of care and a level of respect that I never encountered with anyone else who was helping me with my LD.” A positive view of the student and non-judgmental acceptance, however, does not mean that the professor ignores difficult issues the student needs to confront. Indeed, these beliefs seem to enhance professors’ ability to challenge and engage the student in exploring such issues. Erik stated, “He was always positive, but also, if I was struggling, he was going to speak the truth.” Dalia also emphasized the combination of candor and affirmation in her professor. “She’s honest. But she’s also always saying, ‘You can do it. You’re good at this.’” Caitlin also described the combination of positive acceptance and challenge. “She has a very firm but gentle guiding hand. And that’s what I needed - having someone push you because you are either not strong enough or you are too scared to do it alone.” Collinson and Killeavey (1999) maintain that “high standards, rigorous demands, and respect for students” are intrinsic to establishing a context for optimal learning (p. 349). The words of the students in this study are consistent with this assertion.

Relationship between students and faculty. The importance of the relationship between the professors in the LD support program and the students is a recurrent theme. Students described their relationships with these professors in a variety of ways. Some used metaphors to try to capture the nature of the relationship. Sara stated, “My professor is like a mother-friend.” Greg also used the mother-friend metaphor in describing his relationship with his professor. “I just feel extremely comfortable to tell her anything that I need, really as my mother away from home. My relationship with her is different from other professors and even from other classmates.” He later told the interviewer that he would not have persisted in college without this relationship. “I think I would have left. It all comes back to having a relationship with my professor, and that’s why I’ve stayed.”

Several students combined the concepts of friend, mentor and guide in describing their LD support professors. In describing how his PAL professor helped him adjust to the college environment, Phil used the metaphor of an adult dipping a child’s hand into water. “In terms of support, it’s not that you have just a teacher-you also have a friend...the school was basically the lake and my professor was the person to help take my hand and put it in.” The guiding approach is also evident in Dalia’s words when she said, “At first you professors take our hands and you lead us. And then you say, ‘OK, try this on your own, but we have your back.’” Erik said, “He’s not a coach; I would say more like a mentor.” The student voices confirm Dowds and Phalen’s (2006) contention that an educator/mentor’s “guidance, care, advice, and reassurance” can be a positive factor for students with LD and/or ADHD (p. 155).
The metacognitive conversation. Dialogues and conversations are at the core of the transformative learning approach (Cranton, 2006; Daloz, 1999; Fisher & Torbert, 1995; Mezirow, 1991). Through formal coursework, reading, conferences, and in-house professional development, faculty in the support program have acquired a repertoire of techniques for facilitating metacognitive conversations. These weekly conversations encourage students to reflect on their own learning strengths and limitations, identify current challenges and obstacles, analyze their assignments and determine appropriate strategies, assess their progress, and engage in planning and organizing. Participants in this study affirmed the value of this methodology. In fact, the most common theme that arose during the interviews was the significance of the metacognitive conversations students shared with LD support program faculty. Each of the 14 participants recognized that the core of the work done in the program is accomplished through conversations in which they have the opportunity to explore their learning as well as other aspects of their lives that affect them as learners.

Ross said, “I had conversations with her about a lot of things... just sharing what’s going on in my life.” Greg, too, stated, “To have a genuine conversation with somebody has taught me life skills, not just academic skills, from talking with my professor.” Alex recognized that personal and academic domains are interconnected and that it is sometimes necessary to attend to personal issues before the student can focus on the academic. “If you’ve got a problem and it’s personal, you gotta solve that problem. When you talk about it, then you can let it go.” Jessica also stated, “My professor knew I was depressed. I didn’t talk about it outright with her, but sometimes I would vent because it was eating me alive. And once I could do that, I could move along academically.” These students’ words illustrate the importance of conversation about life experiences for gaining knowledge and for making learning more relevant, a concept discussed by Kolb et al. (2002).

It was clear from the interviews that the content of the metacognitive conversations was wide-ranging and reciprocal. Phil stated:

She talked to me like I was a person and not a subject. We can talk but we can integrate what’s going on at the same time, so we have this incredibly friendly dialogue but at the end of it, it’s not like we haven’t done anything. We walk out and I say, “Whoa, I just accomplished something!”

After describing how her conversations with her professor often meander from topic to topic, Sara emphasized the importance of allowing the content to emerge from the student’s current concerns:

When teachers say, “Sit down, and do this,” I don’t think that will help students explore their LD. But if you sit and talk about different strategies with no set agenda, you realize more things about yourself. It just flows from what is going on in the life of the student at that moment.

Other studies have also found that students with LD and/or ADHD appreciate and benefit from interventions that are personalized and based on their individual needs and specific contexts (Kurth & Mellard, 2006; Parker & Boutelle, 2009). The metacognitive conversation facilitates this individualization.

While their discussions with their LD support professors are often described as conversations with a friend, students distinguished between the conversations they had with program faculty and those with peers. Sara said, “You know, you can always go talk to your friends, but for me there’s something in talking to an adult that is calming and informational and enjoyable.” Ross noted that he enjoyed having “conversations that are intellectual with his professor.” Phil appreciated the mutuality of the dialogue he had with his professor in the support program and noted that these conversations made him feel more mature. “When you get the chance to sit down with somebody and not only talk about your schooling, but also talk about how you are doing, how they are doing, to have a dialogue, you feel more adult at that point.”

Student Perceptions of Outcomes Associated with Participation in the LD Support Program

Students identified growth in self-authorship, self-agency, and self-determination; the ability to reframe their LD; improved academic skills and learning strategies; and an increase in metacognition as outcomes of their participation in the support program.

Self-authorship, self-agency and self-determination. It is difficult to separate the concepts of self-authorship, self-agency, and self-determination in student responses. The three appear intertwined as students
speak of their personal growth. Sarah commented on her increased sense of self-efficacy. “I feel more independent, more adult-like and more in control. I’m starting to make decisions for myself along with that independence.” Lily used an apt metaphor to describe the way her professor gave her the power to find her own way but also provided guidance. “I’m definitely steering the boat, but she kind of is, too. She can be like the assistant driver.” Ross asserted his developing sense of self and of personal control and self-agency, “I’m more independent. I know myself better in all ways. Now I’m able to do my stuff myself and do it well.” Greg also talked about increased autonomy. “The first year I was here [in the PAL program] twice a week, and now I’m only here once a week.” Decreased dependence on the LD support provider is both positive and necessary so students can gain a sense of their own competence and develop the autonomy they will need to function independently as adults (Brinckerhoff et. al., 2002; Field et al., 2003; Raskind et. al., 1999; Yost & Shaw, 1994). Field et al. (2003) assert that the opportunity for students to develop self-determination should be an essential component in support programs for college students with disabilities.

As students become more self-determined and experience academic success, they gain greater self-confidence. Erik reported, “My confidence has gone up a lot. I am less stressed about stuff.” Sarah admitted, “I’ve always had low self-confidence. It’s still a struggle for me, but I’ve definitely grown stronger.” Greg, too, recognized that improving self confidence is an on-going process. “I’ve definitely gained in my self-esteem. I still have a little ways to go.” Caitlin acknowledges growing confidence as a result of improved academic performance. “When I transferred to this college, I felt a sense of rebirth. I started seeing better grades coming across the table. Success was a feeling that I rarely got and I feel now, here, success is part of a daily routine.”

Alyssa was newly diagnosed at age 20. Like Caitlin, her fear of failure dissipated when she began to see improved grades.

I didn’t want to fail my parents, and that’s what I was doing. But now, after getting my first good grades, I was like, “Wow - I can really do this and it wasn’t about proving it to them anymore but proving it to me.”

James also described how success facilitated his enhanced self-confidence as a learner. “My belief in myself came somewhat quickly here since I received such high marks after the first semester. It helped me recognize that I had a lot more as a student than I had ever believed that I had.” Proving their own capability to themselves and others was a strong theme that students reported as contributing to their sense of self-agency.

Reframing the LD and/or ADHD

Gerber, Ginsberg, and Reiff (1992) defined reframing as “the set of decisions relating to reinterpreting the learning disability experience in a more positive or productive manner” (p. 481). Participants’ comments reflect a range of stages in coming to terms with their learning differences in a manner that aligns with the reframing process. Some students were still struggling to accept their LD and/or ADHD. Dalia confided, “I’ll tell you one thing - dyslexia rules my life. And I hate it.” Others had moved further along the continuum of acceptance. John said, “My [LD] is not a stepping stone, but not a roadblock either. It’s a difference that you just have to accept.” Melissa discussed the way her conversations with her professor helped her to understand and accept her LD. “My professor just kind of made it seem like my LD is common - it’s not a big deal.” It is clear that the recognition that they were not aberrant or alone in having this challenge contributed to a change in perspective for other students as well. Jessica stated, “In the program, I came to a more conscious acceptance of it because everyone in the program had an LD or ADHD. And then I realized it doesn’t make me any different.”

Another important step demonstrated by participants in reframing their learning challenges was to find positive aspects of their LD that they could embrace. After describing his previous difficulty accepting his learning differences, John explained his current view. “This is what it is and I’m going to deal with it. To be honest with you, I am happy that it happened because I feel like I wouldn’t be who I am today.” James stated, “I recognized the LD more as a strength that other people don’t have. I have always heard that people with ADHD can have more creativity, and I know I’ve been a real creative person all my life.” Caitlin said:

My LD is a huge pain in the ass; it is the extra weight I drag around, but it has also given me the insight to become the student I am, and more im-
Importantly, the person I am. My life will be unlike anyone else’s because of my LD.

The change in viewpoint regarding the LD/ADHD also impacts student perceptions of their future. Greg asserted:

I have gotten a better understanding of where I stand and that it won’t affect me [in the future]. I’ve become a lot more aware of what I have going for me. You know, that’s kind of put things in perspective that everything’s gonna work out.

Phil described a similar change in perspective:

When I hit the wall [at a previous college] I don’t think I could have felt any worse about myself. At that point I was at rock bottom. I feel that finally I’ve had a chance to understand what my LD is and what it means to me. I don’t see it affecting me at all [in the future].

John also came to understand that his LD did not have to prevent him from succeeding. “I do not see my LD affecting my future. If I have the right mind set, and if I have the desire to accomplish something, then I can accomplish it. There is nothing stopping me.”

Improved Academic Skills and Learning Strategies

In reporting the use of learning strategies that are useful for students, particularly those with ADHD, Reaser, Prevatt, Petscher and Proctor (2007) suggest:

Common interventions that facilitate concentration, time management, and test strategies include keeping a weekly planner, writing down all reminders, planning and writing down daily and weekly study goals, sitting in the front of the classroom, utilizing note taking as a way to increase concentration, and specific strategies for essay versus multiple choice tests (p.634).

Participants reported gains in a number of these areas. Ross admitted, “The main thing I learned in the program was organization. In my sessions, I needed all my assignments organized in terms of what I needed to do and how to do it. And that’s what I got.” Lily, too, found her time management skills improved. “I definitely use strategies, and I plan my week.” Phil appreciated learning how to organize his time and assignments. “…when I first came here I was given a day planner, and it was great. I started to find myself being more organized, looking at different projects, and figuring out when I could find time to do the work.”

For some students, acquiring better reading and writing strategies was an important outcome of participation in the program. Lily said, “What I need is help outlining papers. Knowing where to put information made it so much easier than sitting down and starting to write.” Ted described his new reading strategy as “a survival skill. You read the questions and then find the answer to the questions in the reading just to get through it.” Greg tried adaptive technology but found other reading strategies more helpful. “I’ve tried the Kurzweil and it didn’t work for me…. I still have trouble reading a chapter, but I do it more strategically now instead of just reading word for word.”

Others noted they had been taught to adapt or match strategy use to task. Ted said, “I have strategies for how I would approach math as opposed to approaching sociology.” Sara, too, said, “I think the strategies I use depend on each class. In some, I have to read and make accurate notes, whereas with something like Managerial Communication, if I relate it to life, I’ll be able to remember.” Dalia noted, “I’ve worked a lot on trying to study for tests in different ways because it’s always been a struggle for me and the program has definitely given me different strategies and options.”

Participants noted additional gains in study strategies. Alex noted, “I sometimes learn things using images. I learned a strategy for remembering a group of words by making up a story about it.” Dalia had a different technique. “I keep writing it four, five, six times and then I get it stored in my mind.” Melissa learned, “Nonverbal LD is all about getting caught up in the details and not the whole picture. So my professor taught me to look at the main key points.”

Metacognition

Perhaps the most important learning outcome, however, was in the area of metacognitive awareness. A number of researchers indicate that metacognition is an underlying factor and predictor of academic success defined by grade point average in college students with LD (Dunning, Johnson, Ehrlinger and Kruger, 2003; Reis et al., 2000; Ruban, McCoach, McGuire, & Reis, 2000). Erik said, “I think the best thing I picked up from the program is understanding how I work and do
things, because I really never knew this in high school.” Jessica reported, “I have learned more about brain and behavior. I have learned better how to approach test questions.” Phil said:

“When I think about my thinking I see that I am looking outside the box and more importantly when it comes to reading or projects, I ask, “How do I approach the task? Do I do everything all at once? Do I break it down?” When I read now, a big thing I ask is, “How do I read?”

Ted observed a new awareness of his need for active participation in learning when he said, “I think I have become a better learner over time. I realize that if I’m actively doing something, I can pick it up pretty quickly.” Self awareness is a major component of metacognition (Pintrich, 2002). Greg reported:

“I know myself better now. That’s what I’m taking away from the program. It’s helped me figure out who I really am. That’s one of the reasons you go through college - to find out who you really are, where you want to be.

Perhaps Caitlin best summarized the importance of metacognition as a life skill:

Metacognition is an equation that you can apply to life and not have to think about every step of the way. And when you get to the point where you don’t have to think about every step of the way- and that’s where I am, thankfully- then that’s where you have grown and can say, “Whoa - I just did that, didn’t I?” I had to be taught metacognition, but now I’ve got it.

**Discussion**

This study was conducted as one part of an outcomes assessment of an intensive fee-based, credit-bearing LD support program in a small four-year college in the Northeast. Its purpose was to examine what students perceived as the outcomes of their participation in the program and what aspects of the program they found helpful or not helpful. All participants noted the importance of the mentoring relationships they developed with their professors in the LD support program and the metacognitive conversations they had with them. McDermont and Alterio (2003) asserted that metacognitive conversations allow students to construct knowledge and theories based on their experiences, establish important relationships with others, become more self-aware, and cope more effectively with difficult emotions. The participants clearly believed they benefitted from conversations with trusted professors that allowed them to openly explore their experiences and ideas. Students also reported growth in the affective areas of self-authorship, self-agency, and self-determination. Many felt that their view of their LD and/or ADHD had changed as well as their perceptions of themselves as learners. Some students demonstrated a reframing of their LD and/or ADHD to the point where they viewed their learning difference as positive and unique. The transformed perspective on LD has been found in other studies and is a crucial step in personal acceptance and in pursuing academic and vocational goals (Dowds & Phelan, 2006; Gerber et al., 1992; Higgins, Raskind, Goldberg, & Herman, 2002; Raskind et al., 1999). Equally important, participants noted acquisition of effective learning skills and greater metacognitive awareness.

When asked for feedback that could contribute to the efficacy of the program, students indicated satisfaction with existing programmatic goals and methodology. Despite further probing, which specifically asked students to give feedback on any negative aspects of the program, participants persisted in stating their satisfaction. The researchers stressed the program’s eagerness to make changes and improvements that would benefit students, but the majority of participants stated that the program should not be altered. The only recommendation was the suggestion from two students for increased opportunity for social interaction with other peers enrolled in the program.

**Limitations**

This is a qualitative study in which the researchers relied on students’ self-reports of perceived outcomes. Participants may not always or accurately remember occasions that were relevant to this study. They may not be aware of some of the strategies used by their professors and may not have noticed changes in themselves that were incremental in nature. Studying their experiences does, however, provide an opportunity for students to reflect on how they may have changed as a result of their participation in the program.

Sample size was limited, as is typical in qualitative studies. Since the volunteer participants were
self-selected and their number was small, students’ views may not be representative of the total program population and cannot generalize to the broader postsecondary population of students with LD and/or ADHD. This particular comprehensive program is a unique learning experience for college students with LD and/or ADHD. More research would be needed to assess the relevance of this study to other populations of postsecondary students and/or to LD support programs - both fee and non-fee based - in other higher education settings.

The authors acknowledge that potential researcher bias may exist since both teach in the program and are, thus, invested in the outcomes. Another concern is that, because students knew that the researchers are faculty in the program, they may have been reluctant to provide negative feedback. The researchers made efforts to minimize this by making certain that neither researcher interviewed students with whom she had personally worked, by asking for criticisms in several different ways, and by assuring participants that the researchers were eager make improvements to the program based on their feedback.

Implications

The participants in this study provide personal insights and offer guidance regarding elements that can contribute to the implementation of an effective postsecondary support program for students with LD and/or ADHD. Transferability is limited by the fact that the sample is small and all participants were students in the same intensive, fee-based postsecondary support program in a small, private liberal arts college. Still, practitioners can determine the degree of applicability to other settings and can adapt the findings for their own programs. The lessons learned from the participants in this study can be integrated with findings from other research, including quantitative measures of factors contributing to the success of students with LD/ADHD. The participants’ voices, based on their own experiences and perspectives, are a critical piece of the puzzle.

These participants confirm the value of a transformative, dialogic approach. They universally refer to the significance of the conversations they had with their professors in the support program and the value of these dialogs for self-discovery, exploration of ideas, emotional support and metacognitive learning strategies. Gunnlaugson and Moore (2009) note that there is a growing interest in and appreciation for such conversation-based learning in higher education. Bennett (2001) states that conversation is at the core of liberal education, actively involves students in their learning, and helps them find their individual voice. Taking such an approach in postsecondary support programs for individuals with LD and/or ADHD can help to integrate the programs into the greater mission of the colleges in which they are located and foster the inclusion of students who have often been marginalized.

The participants also affirm the importance of support programs that integrate the emotional and cognitive domains of their higher education experiences. They view their professors in the support program as mentors and friends with whom they can share their fears, anxieties, pain, and joy. They make it clear that the relationships they have with their faculty/mentors have contributed greatly to their success. Hyland (2010) notes that overemphasizing skill development and behavioristic outcomes in postsecondary education is detrimental to students’ learning and growth; affective dimensions of learning must be addressed as well. While emotional support is beneficial for all students, students with disabilities often have unique stressors, frustrations, and obstacles that may interfere with their success. For them, support is even more critical. They need an open, welcoming, safe environment in which to engage in risk-taking and self-discovery, explore the obstacles they encounter, and discover ways to overcome their challenges. Bennett (2001) notes the importance of authentic hospitality in promoting liberal learning and in fostering open conversation with students in the higher educational environment. For students with LD and/or ADHD, it is particularly important to feel welcomed, warmly received, and appreciated by faculty and staff members in programs designed to support student success.

The student voices heard in this study provide practitioners with unique insights into the characteristics of support programs that can contribute to the success of postsecondary students with LD and/or ADHD. The researchers recognize that implementing a transformative, dialogic approach and integrating the cognitive and emotional domains is challenging. It is important for postsecondary institutions to perform needs assessments and examine their own unique resources to determine how to adapt the findings of this study to their own settings. Professional development, training, and the involvement of key college personnel includ-
ing faculty, academic advisors, staff, and others who work directly with students can lead to the development of more effective ways of supporting postsecondary students with LD and/or ADHD.

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Appendix

Interview Questions

1. How would you describe your LD in your own words?

2. Before you came to the program, how did you see your LD?

3. What contributed to the way you saw your LD and yourself as a learner?

4. Thinking back over your program experience, was there a time when you realized that your ideas and feelings about your LD had changed?
   • Briefly describe that experience.

5. Could you tell me about a time when you faced a particular challenge or dilemma that caused you to question your values/beliefs/behaviors related to yourself as a learner?
   • What occurred?
   • Who was involved?
   • How did you handle the challenge or dilemma?
   • What was the outcome?

6. Have your ideas about learning, the learning process, or knowledge changed?

7. Have you changed as a result of your participation in the program? How?
   • Have you changed academically? How?
   • Are you different as a learner? In what way?
   • Have you changed personally? How
   • Were your personal goals influenced in any way? If so, how?
   • Behaviors/feelings/ways of thinking

8. Which of the following influenced this change?
   • Was it a person or persons who influenced this change?
   • If so, who?
   • If your program professor was one of the people who influenced this change, what specific things did s/he do to foster this change?
   • Was it a particular activity(ies) or strategy(ies) in PAL that influenced the change?
   • If so, what was it?

9. What changes would you like to see in the program?
   • What could have been done differently in the program to help you more?
   • What advice would you give to the program?
   • Was there anything about the program that you disliked or didn’t find helpful?

10. How do you see your LD affecting your future?

Bulleted prompts following some questions were used to elicit responses if the participant did not provide a complete response to the initial question.
Expanding Access to STEM for At-Risk Learners: A New Application of Universal Design for Instruction

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Abstract
Despite a growing demand for a well-educated workforce in science, technology, engineering, and math-related (STEM) careers, fewer American college students are pursuing these majors. Students with disabilities are one of the at-risk groups whose interest in pursuing STEM careers is frequently compromised by systemic barriers to participation. Peer-Led Team Learning (PLTL) is a national peer mentoring model designed to promote student success in STEM courses. The authors found that students with disabilities did not benefit from PLTL as much as students without disabilities. With support from a National Science Foundation grant, the authors adapted the PLTL model by incorporating the Principles of Universal Design for Instruction (UDI) into the peer mentors’ training. This article describes the early results on peer mentors’ ensuing beliefs and practices and the academic outcomes of participants with disabilities. Implications for replication with at-risk students on other campuses and future research are discussed.

Keywords: STEM, peer-led team learning, universal design for instruction, learning disabilities, ADHD

At a time when the United States faces an increased demand for more scientists to strengthen the economy and enhance national security, the number of undergraduates completing science, technology, engineering, and/or mathematical (STEM) degrees is diminishing. In 1980, nearly 30% of all bachelor’s degrees were in STEM areas but that figure had dropped to 23% by 2007 (U.S. Department of Labor, 2007). This trend has particular significance for historically underrepresented groups in STEM majors and careers, including women, minorities, and people with disabilities (Task Force, 1989). Twenty years later, university undergraduates with disabilities continued to reflect limited pursuit of STEM majors. According to NLTS-2 data, only 9% reported majoring in engineering or communications and only 6% reported majoring in either science or computer-related areas (Newman et al., 2011). As a group, undergraduates with disabilities often benefit from the same types of academic supports that benefit students without disabilities but especially other at-risk populations. It is important to explore efficacious academic supports that can address the decline of undergraduates with and without disabilities who can become the next generation of scientists, computer programmers, engineers, and mathematicians.
**Undergraduates with Disabilities**

This article will focus on STEM barriers that confront postsecondary students with learning disabilities (LD) or Attention-Deficit/Hyperactivity (ADHD). Together, these students represent over half the number of the nearly 11% of U.S. undergraduates who report a disabling condition (“Education Needs,” 2009; Harbour, 2004). Many students with these “invisible” disorders, however, do not disclose their disability in postsecondary settings while seeking out campus resources to support their academic goals. Consequently, faculty and campus staff members who coordinate academic skills centers, tutorial services, and peer mentoring programs, frequently encounter a need to provide academic supports for at-risk learners including those who do not disclose their LD or ADHD. Disability services offices continue to seek ways to provide effective accommodations and academic services to students with identified disabilities while taking rigorous STEM courses.

Overall, students with disabilities (SWDs) participate in higher education in lower rates than high school graduates without disabilities (Newman, Wagner, Cameto, & Knokey, 2009). College SWDs also take longer to graduate and graduate less frequently than peers without disabilities (“Profile,” 2006). In addition to these problematic trends, SWDs also appear to have access to fewer role models (i.e., mathematicians and scientists with disabilities) and receive less encouragement to pursue STEM majors/careers compared to peers without disabilities (Bonetta, 2007; Summers, 2009). College students with LD and ADHD can encounter even more explicit attitudinal barriers when pursuing a STEM major. They have reported that professors, teaching assistants, and academic support services staff appear to question, albeit subtly, their academic potential and need for disability-related supports (Jensen, McCrary, Krampe, & Cooper, 2004). Negative perceptions about the “fairness” of accommodations have also been identified in undergraduates without disabilities, especially males (Upton & Harper, 2002). Consequently, a variety of internal and environmental barriers can impede the academic success and persistence of students with LD and/or ADHD in STEM fields, even when campuses provide ample support services such as peer mentoring programs.

These challenges can be exacerbated by the nature of the courses that comprise STEM curricula. For example, calculus courses require a mastery of algebraic principles and the accurate copying, recall, and use of highly symbolic information that can be transposed or recalled in the wrong order by students with sequencing and working memory deficits (Nolting, 2002). Students with LD and ADHD, who can reverse or fail to notice details when reading or writing scientific notations, struggle to recall multi-step formulas or procedures, and chafe at the self-regulation demands of reviewing course content frequently enough to achieve mastery (Allsopp, Minskoff, & Bolt, 2005; Ruban, McCoach, McGuire, & Reis, 2003). These impairments can limit the academic self-efficacy of undergraduates with disabilities while student STEM content (Jensen, Petri, Day, Truman, & Duffy, 2011).

**Difficulties Learning STEM Content**

*All* college students must develop independent problem-solving skills to succeed in STEM coursework. Undergraduates have reported that rigorous high school STEM prep programs, characterized by reliance on memorization and ready access to teachers for individualized reviews, can fall short of equipping them with the caliber of problem-solving skills they need in college (Cracolice & Deming, 2005). STEM courses at the postsecondary level impose formidable challenges to those who lack this proficiency. For example, course exams often include items never before seen by students who are expected to generalize prior knowledge in harmony with effective test-taking strategies. Many students become better problem-solvers in college by enhancing their use of “self-talk.” This form of private speech is a cognitive mediation strategy used to organize and guide one’s thinking (Depape, Hakim-Larson, Voelker, Page, & Jackson, 2006; Whittington, Lopez, Schley, & Fisher, 2006). Students with executive function disorders such as ADHD and LD, however, have been found to struggle with the development of this skill area unless direct instruction can be provided (Barkley, 1997; Brown, 2005; Kray, Eber, & Lindenberger, 2004).

Research on the general student population at the authors’ university has shown that many students, with and without disabilities, struggle with performance and persistence in large lecture introductory STEM courses. In first-semester general chemistry (Chemistry 111), for example, about 40% of the general student population received grades of C+ or lower in the course between Fall 2005 and Spring 2007. In introductory calculus (Calculus 1), approximately 20% received grades of C+...
or lower during the period, not counting the nearly 10% of students who withdrew from the course. While the general student population on the authors’ campus and other institutions can find these large STEM courses challenging, too, students with documented disabilities have even more difficulty in them. Among SWDs, nearly 50% of students who enrolled in Chemistry 111 and about 25% of those enrolled in Calculus 1 earned a C+ or lower despite their comparable coursework in high school, SAT/ACT scores, and the ability to meet the same university admissions criteria.

Peer-Led Team Learning

For more than a decade, many U.S. campuses have utilized Peer-Led Team Learning (PLTL) to help undergraduates with and without disabilities overcome some of these challenges (http://www.pltl.org/). Developed by a consortium of four universities in the 1990s, PLTL is an academic mentoring program that trains juniors and seniors who have performed well in STEM courses to facilitate study groups comprised of undergraduates taking these courses (Quitadamo, Brahler, & Crouch, 2009). Unlike content tutoring models, PLTL places greater emphasis on helping students work collaboratively to strengthen their use of the problem solving process. Peer mentors do not provide answers to weekly problem sets. Instead, they guide study group members in the use of various activities to promote their ability to think more effectively while solving those problems. Peer mentors are trained in group techniques that facilitate team learning, including structured exercises such as “Round Robin” where study group members take turns writing the next step in a problem. While PLTL is a requirement on many campuses, it is voluntary at the authors’ campus. Over half of all students taking STEM courses participate in this popular program at this university (Hockings, DeAngelis, & Frey, 2008; http://pltl.org/MoreCriticalComponents.php).

Whether mandatory or voluntary, the PLTL model varies little from campus to campus. Weekly group meetings last approximately two hours and take place throughout the semester. Typical PLTL groups are comprised of six to eight students with one peer mentor acting as facilitator. Students are expected to have completed assigned course readings, attended recent lectures, and prepared problems before that week’s session so they can utilize this knowledge during PLTL. The facilitator often asks students to take turns talking through a problem aloud, working out steps at the board, and/or recording potential solutions developed by the group (Hockings et al., 2008). These conditions create a learning environment that in many ways mirrors a classroom learning experience.

PLTL is the primary academic support model for gateway STEM classes at the authors’ university and previous research has found that students who participated in PLTL earned higher grades (one-third a letter grade on average) than those who do not (Hockings et al., 2008). However, limited data suggested that SWDs who participated in PLTL did not achieve similar boosts to their academic performance in STEM courses. Between Fall 2005 and Spring 2007, students with identified disabilities who participated in PLTL earned a mean course GPA of 2.68 (n = 26). Students with disabilities who took the same STEM courses during the same time period but did not participate in PLTL earned a mean course GPA of 2.71 (n = 73). In addition, SWDs had greater difficulty with STEM persistence than their peers without disabilities. Between 2005 and 2007, a large number of all students who initially declared an interest in STEM majors subsequently changed to a non-STEM discipline after a disappointing academic performance in those gateway courses. During this time, the migration rate away from STEM for all undergraduates was 40%, but was much higher (55%) for students with documented disabilities. This difference is statistically significant using a student T-Test, t(712) = 3.45 , p < .01, to compare the average rate of migration for the two samples. The Cohen’s D Effect Size value of 0.26 is considered a small effect size with the percent of overlap in samples between 14.7% and 21.3%. It is these performance disparities that the authors endeavored to address with an NSF grant-funded project.

Universal Design for Instruction

Universal Design for Instruction (UDI) may hold great promise for helping peer mentors increase access to learning in PLTL sessions for students with disabilities. Adapted from earlier work in the fields of architecture and product design, UDI seeks to make learning environments as useable by the greatest numbers possible by anticipating diverse learning needs and proactively building in accessibility features that can meet those needs (Burgstahler & Cory, 2008; “History of,” 2011). The Nine Principles of UDI©, developed at the University of Connecticut, address issues of
pedagogy (e.g., making information perceptible), affective tone (e.g., creating a welcoming environment), and collaborative learning (e.g., promoting interaction among students) (Embry, Parker, McGuire, & Scott, 2005). UDI has been defined as:

an approach to teaching that consists of the proactive design and use of inclusive instructional strategies that benefit a broad range of learners including students with disabilities. The nine Principles of UDI provide a framework for college faculty to use when designing or revising instruction to be responsive to diverse student learners and to minimize the need for “special” accommodations and retrofitted changes to the learning environment (Scott, McGuire, & Embry, 2002).

While UDI was developed for use by college faculty in the classroom, its utility has been recommended more recently for disability service providers when they offer instruction or facilitate learning during one-on-one student sessions (Parker, White, Collins, Banerjee, & McGuire, 2009). Recognizing that PLTL sessions were in many ways an instructional environment, the authors hypothesized that students’ ability to learn more effectively in the sessions could be enhanced if the peer mentors infused their facilitation strategies with the UDI principles.

Adapting PLTL with UDI

A demonstration and training grant from the National Science Foundation (www.nsf.gov/funding/pgmsumm.jsp?pims_id=5482&org=EHR&from=home) supported the authors’ efforts to create Mastery PLTL (MPLTL). MPLTL’s goal is to enhance the accessibility of traditional PLTL groups with UDI principles, thereby improving academic outcomes of SWD in STEM courses and increasing the proportion of SWDs who complete STEM majors over time. In this article, we report the early impact of MPLTL on the academic performance and satisfaction levels of participants with LD and/or ADHD. Their course grades and persistence in STEM courses are compared to students with the same disabilities who did not participate in MPLTL as well as all students in the same STEM courses. Formative data from the MPLTL peer mentors about their training and group facilitation experiences are also reported.

Methodology

Participants

In order to accomplish the project’s objectives, the grant team developed, piloted, and evaluated procedures and products for (1) training peer mentors and (2) conducting MPLTL groups comprised of SWDs enrolled in chemistry and calculus MPLT groups while (3) disseminating products and findings through a website created for this project (www.mpltl.org) (Parker & Getty, 2009). All students with a documented LD and/or ADHD who were registered with the University’s Disability Resources office and enrolled in the project’s courses were invited to participate in MPLTL. The first and last authors conducted the recruitment activities. All potential participants received identical invitation emails twice in the three weeks leading up to a given semester. The same authors then contacted these students via email or phone to discuss the project and ascertain their interest in participating.

The interventions took place during two semesters and involved a total of 16 students, all of whom were freshmen or sophomore. During Spring 2008, five students participated in Chemistry 112 MPLTL and three students participated in Calculus 3 (advanced) MPLTL. In Fall 2008, five students participated in Chemistry 111 MPLTL and six students participated in one blended section of Calculus 2 (intermediate) and Calculus 3 MPLTL. Three of these students were in both MPLTL groups that semester; a total of eight students participated in MPLTL in Fall 2008. Following the PLTL model, students in MPLTL sections attended 60 minute sessions each week during the semester beginning with the first full week of classes.

Training Peer Mentors

While MPLTL peer mentors utilized the essential tenets of the PLTL model, several modifications were made to address project goals. MPLTL sections were restricted to students with LD and/or ADHD only. Whereas traditional PLTL groups are led by only one peer mentor, the MPLT groups were led by teams of two mentors who would take turns running the group from one week to the next. This decision created a small community of practice for project peer mentors and permitted ongoing, informal observations and data collection during each session. Peer mentors were required to have had at least one semester of experience running PLTL groups and a recommendation from the
Chemistry or Calculus PLTL coordinator. In addition, all applicants were interviewed by the Project Director to ascertain their interest levels and abilities relative to working with SWDs.

The Project Director conducted a day-long orientation workshop one week before the MPLTL sessions began. The workshop included an icebreaker, an overview of the MPLTL project’s conceptual framework and goals, introduction of the Principles of Universal Design for Instruction (UDI), a video-prompted discussion of learning characteristics of college students with LD and/or ADHD, and an introduction to instructional templates. The workshop concluded with a discussion of logistics, confidentiality and disclosure issues, and suggestions about how/when to contact students.

The Project Director also conducted a weekly hour-long seminar with the MPTL peer mentors throughout the semester. The Calculus PLTL coordinator and the Assistant Director of Academic Programs in the grant team’s academic services center (who holds a Ph.D. in Chemistry) frequently joined these seminars as content experts. Peer mentors took session notes while observing their partner work with students each week in MPLTL. The MPLTL peer mentors’ seminars began each week with discussions about these observations and examples of effective practice from the MPLTL sessions. Additional training continued as team leaders provided further instruction about the Principles of UDI, LD/ADHD learning characteristics, and how these concepts could be applied in MPLTL sessions.

Time, materials, and support also were provided to the peer mentors as they created “templates” during the seminars. Templates were defined as any tool or strategy that enhances students’ understanding, retention, or application of course concepts, formulas, or procedures. Peer mentors created written templates (i.e., paper-based charts, lists, or diagrams) as well as video templates. Each written template used one Principle of UDI. For example, a chemistry MPLTL peer mentor photographed the white board she had used to create the template, “Getting Session Started.” Before students arrived, she had written relevant formulas in red so students would not have to recall them from memory or look them up while solving that day’s problems, which were then written on the board in blue. This template used UDI Principle 8 (Community of Learners) by promoting the communication of important information between students and peer mentors. To make the video templates, the peer mentors talked aloud while solving problems similar to those worked on by students in MPLTL. These videos became universally accessible models of proficient problem-solving strategies through the use of self-talk (Whittington et al., 2006).

MPLTL Intervention

The peer mentors also attended the weekly PLTL training meetings required of all peer mentors, which involved reviewing that week’s problem sets to be worked out by students in PLTL (or MPLTL) meetings. Although the MPLTL sections were restricted to students with LD and/or ADHD, no notation to this effect was connected to how the sections were listed in course registration software. MPLTL sections covered the same material at the same time as PLTL sessions. While maintaining these overall similarities, MPLTL peer mentors were trained to present information in ways that were more sensitive to students’ information-processing and/or attentional needs. For example, they used colored markers and a 2-column format to write problems with corresponding written reminders on the board and often gave students a five-minute stretch break mid-way through the two-hour sessions.

Assessment Activities

To assess the impact of MPLTL on student outcomes, the authors gathered both quantitative and qualitative data at several stages. Course GPA, cumulative GPA, and STEM persistence data were gathered for all students registered in those STEM courses. The data were obtained from the University’s Student Information System to ensure conformity of collection. Course and cumulative GPA were gathered as soon as grades were available after the end of the relevant semester. “Persistence” was defined as registering for the next course in the calculus or chemistry sequence or, if the student had completed the sequence, maintaining an earlier declaration to major in a STEM area. A third measure came from pre- and post-intervention scores on the Learning and Study Strategies Inventory ([LASSI], 2nd edition) (Weinstein & Palmer, 2002). In addition, students in MPLTL were asked to complete a brief course evaluation created for this project during their last session. This brief instrument included Likert-type measures of satisfaction and open-ended response items. Finally, SWDs who did and did not take MPLTL were invited to participate in a focus group for their respective groups each semester.
Results

Impact on MPLTL Students

Notwithstanding limitations due to the small sample size, the quantitative measures indicated overall positive trends in STEM persistence and the use of effective learning strategies. Descriptive statistics were used to compare mean averages in course GPA data (see Table 1). In Spring 2008, the inaugural semester for this project, MPLTL students had lower course GPA means compared to SWDs who did not take MPLTL as well as the overall GPA in that STEM course. Average course GPA’s in Chemistry 112 were 1.75 (MPLTL students), 2.44 (SWDs who did not take MPLTL), and 2.81 (course average for all students in Chemistry 112). Overall, GPA’s were higher in Calculus 3; however, MPLTL students still demonstrated the greatest academic challenge. Average course GPA’s in this course were 3.28 (MPLTL students), 3.7 (SWDs who did not take MPLTL), and 3.34 (overall course average for all students in Calculus 3).

The Chemistry 112 MPLTL was offered during the first semester of this intervention program. Two of the students who participated had been placed on academic probation during the first semester; both became academically ineligible to return to the University at the end of that semester. One of these students was ranked last in his school among the entire freshman class. It may be that MPLTL was offered too late to assist these second-semester freshmen who were already at significant academic risk when the program began.

Comparisons of course GPA’s during Fall 2008 demonstrated more positive outcomes. In Chemistry 111, MPLTL students did better (average course GPA of 2.8) than non-participating SWDs (average course GPA of 2.33), while the overall GPA average for all students in that course was 3.06. Students with disabilities outperformed students overall in Calculus 2, regardless of their participation in MPLTL. The course average for MPLTL students was 3.33; non-participating SWDs earned an average course GPA of 3.5. Average GPA for all students taking that course that semester was 3.11. Clearly, chemistry appears to create more academic challenges for all students compared to calculus courses1.

Cumulative GPA data reflected a smaller gap between the three groups’ academic performances. MPLTL groups that had the lowest cumulative GPAs were those who took Chemistry 112, Calculus 2 and Calculus 3. MPLTL students in Chemistry 111 had a higher cumulative GPA (3.32) compared to SWDs who did not take MPLTL (2.87) but slightly lower than the overall course cumulative GPA of 3.38. Averaging each group across courses, MPLTL students’ overall cumulative GPA was 2.96, 3.16 for SWDs who did not take MPLTL, and 3.37 for the general course students (see Table 2). These results suggest that the SWDs who voluntarily enroll in PLTL on the authors’ campus may be among the most at-risk subgroup of students, hoping to benefit greatly from this academic mentoring program. MPLTL, particularly when offered during the fall semester, seemed to provide useful academic support to SWDs. The data also underscore the challenges SWDs face in STEM courses, regardless of their participation in some version of the PLTL program.

In addition to GPA data, the authors analyzed persistence data. “Persistence” was measured as enrollment in the next course in the Calculus or Chemistry sequence in the subsequent semester or continuation of the STEM major that a student had identified during the admissions process. Prior to MPLTL, SWDs had migrated out of STEM courses in greater numbers (55%) than students without disabilities (40%) during the Fall 2005 through Spring 2007 semesters. MPLTL appears to have helped SWDs persist in STEM coursework at higher rates than at pre-intervention. After removing the two MPLTL students who became academically ineligible to return to the university, the 14 students in this group persisted at a rate of 71% compared to only 61% of the SWDs who did not participate in MPLTL. These migration rate differences are promising, although they do not reach significance using a student t-test at the 0.05 level (probability level = .14), t(45) = 1.502 , p > .005. The Cohen’s D Effect Size value of 0.44 is considered a small to medium size effect, though significance was not achieved.

The Learning and Study Strategies Inventory ([LASSI]; Weinstein & Palmer, 2002) was used to measure MPTLT students’ pre- and post-proficiency with study skills The LASSI is a well-normed, 80-item online survey that compares students’ academic behavior and beliefs to a large sample (n = 1,092) of other college students. Students read a descriptive statement and then select a response reflecting the extent to which that behavior or belief is typical of them. The ten

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1 ANOVA tests were performed in initial work and found significant. However, given the mixed course and overall GPA results, the interpretation of that significance does not consistently support performance changes in a consistent direction.
Table 1

*Average Course GPA by Student Group*

<table>
<thead>
<tr>
<th>Course</th>
<th>All Students</th>
<th>Students with Disabilities (Not in MPLTL)</th>
<th>Students with Disabilities (In MPLTL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 111</td>
<td>3.06</td>
<td>2.33</td>
<td>2.8</td>
</tr>
<tr>
<td>Chemistry 112</td>
<td>3.55</td>
<td>2.44</td>
<td>1.75*</td>
</tr>
<tr>
<td>Calculus 1</td>
<td>3.55</td>
<td>3.43</td>
<td>n/a</td>
</tr>
<tr>
<td>Calculus 2</td>
<td>3.11</td>
<td>3.5</td>
<td>3.33</td>
</tr>
<tr>
<td>Calculus 3</td>
<td>3.34</td>
<td>3.7</td>
<td>3.28</td>
</tr>
</tbody>
</table>

*Note: Overall, students with disabilities performed better academically in calculus courses compared to chemistry courses. * Two students who participated in the Chemistry 112 MPLTL were on academic probation at the beginning of the semester and lost eligibility at the end of that semester.*

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Table 2

*Cumulative GPA by Student Group*

<table>
<thead>
<tr>
<th>Course</th>
<th>All Students</th>
<th>Students with Disabilities (Not in MPLTL)</th>
<th>Students with Disabilities (In MPLTL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 111</td>
<td>3.38</td>
<td>2.87</td>
<td>3.32</td>
</tr>
<tr>
<td>Chemistry 112</td>
<td>3.31</td>
<td>3.10</td>
<td>2.26</td>
</tr>
<tr>
<td>Calculus 2</td>
<td>3.30</td>
<td>3.31</td>
<td>2.88</td>
</tr>
<tr>
<td>Calculus 3</td>
<td>3.50</td>
<td>3.41</td>
<td>3.40</td>
</tr>
<tr>
<td>Group Mean Across Courses</td>
<td>3.37</td>
<td>3.16</td>
<td>2.96</td>
</tr>
</tbody>
</table>

*Note: Overall, cumulative GPA indicates a narrowing of the achievement gap that had previously existed between students with and without disabilities in STEM courses. Early intervention during first-semester Chemistry 111 may be particularly helpful to students with disabilities, rather than waiting until their second semester (Chemistry 112).*
scales result in cluster scores in three areas: Skill, Will, and Self-Regulation. For example, four scales create a Self-Regulation cluster score that was used to measure changes in participants’ executive function skills. These scales include Concentration, Time Management, Self-Testing, and Use of Study Aids.

Twelve students took both the pre- and post-intervention measures. Their improved post-test scores in all three cluster areas were statistically significant at the .05 percent level. While the MPLTL students demonstrated impressive growth in the Skill cluster (pre- group mean 42nd percentile; post- group mean 66th percentile) and the Will cluster (pre- group mean 42nd percentile; post- group mean 63rd percentile with a probability value of 0.005 for a single-tailed test), their greatest gain was in the Self-Regulation cluster (pre- group mean 29th percentile; post- group mean 56th percentile) at the .001 probability level for a single-tailed test. Self-regulation skills were deemed particularly important given the expectation that students initiate and sustain their own study efforts in STEM courses and utilize effective self-monitoring strategies while solving detailed course problems. Self-regulation skills can be particularly challenging for students with LD and/or ADHD, who often experience executive function impairments (Brown, 2005). The LASSI results indicate that students made important gains in these areas (see Figure 1).

A fourth area of data-based results focused on students’ satisfaction with MPLTL sessions. Given the limited research about college SWDs in STEM majors, the authors created a five-item survey instrument that all MPLTL students completed during the last session. This survey included both Likert-scale ratings (1 = Strongly disagree; 6 = Strongly agree) and open-ended prompts. Students’ comments indicated high levels of satisfaction with MPLTL. Asked what was most helpful about the project, many students described their development of greater problem-solving proficiency. Open-ended responses included, “I’m better at working through problems and seeing the important part of the question [now],” “I have learned to speak aloud when doing problems,” and “Visualizing a problem clearly helped me figure out a problem on the fly during an exam.”

Figure 1. LASSI Pre- and Post-Intervention Cluster Scores

![Figure 1. Scores from 12 students reflect statistically significant improvement in all three Cluster areas of the LASSI. The area of greatest improvement (Self-Regulation Cluster) suggests the MPLTL program had a particular impact on students’ executive functioning skills.](image-url)
One survey item asked how comfortable students were in a PLTL study group in which all students had an LD and/or ADHD. Interestingly, while the mean score was a 5.7 (6.0 being “Strongly Agree”), students also recommended more universal applications of the MPLTL model. Sample comments included, “EVERYONE should be allowed to benefit from the HIGHLY TRAINED PLTL leaders,” “It should be open to every student. Some may not have certifiable LD’s but may learn better with the same style,” and “Not to any student but maybe there should be a group for students without a diagnosed LD or ADHD but clearly show a history of similar difficulties and/or struggles similar to those of students with LD and/or ADHD.” Such comments reinforced the provision of the MPLTL model for a wider group of at-risk learners, regardless of their disability status.

Finally, focus groups generated additional qualitative data about students’ STEM and MPLTL experiences. One of the authors, a full-time evaluator for the academic center where the grant team works but who was not involved in the implementation of MPLTL, conducted a focus group each semester with (a) students who participated in MPLTL and (b) SWDs who took the same STEM courses but chose not to participate in MPLTL. The focus groups were conducted approximately three weeks before final exams each semester.

A total of 14 students participated in the MPLTL focus groups. Five students participated in focus groups for SWDs who did not participate in MPLTL. The research team developed the interview questions, which were semi-structured, open-ended prompts. Examples include, “What warning flags or other signs tell you that you’re not doing as well in a STEM course as you’d like?” and “What are some useful aspects of your peer mentors’ methods in the MPLTL sessions?” Students who did not take MPLTL were asked the same questions about challenges in STEM courses as well as their reasons for opting not to take MPLTL.

Data from the focus groups highlighted students’ generally high levels of satisfaction with MPLTL and provided examples of how the intervention supported their persistence in STEM courses. One student noted, “I improved at performing self-talk while taking tests, which helped me focus on the important details and pretty much stopped me from making any careless errors.” Another participant stated, “I learned not to be afraid to ask for help or talk to others about problems I don’t understand.”

Analysis of the focus group transcripts also identified six types of barriers that students encountered in STEM areas. Identified barriers such as these can assist researchers and campus practitioners in minimizing factors that unintentionally discourage SWDs from pursuing STEM majors and careers. Barriers included class size, the cumulative nature of STEM curricula, the specificity of STEM content, the degree of challenge or competition in STEM gateway courses (heavily filled by pre-med majors), the pace of instruction in large STEM lecture courses, and the qualifications of PLTL peer mentors. Many focus group participants talked about class size, which can no doubt create a barrier for students without disabilities, too. This barrier restricted their willingness or ability to ask questions during lectures or request that information be repeated. Students with LD and/or ADHD may find this barrier particularly challenging as they transition to college. As one participant said, “I went to a small high school and so I could go to the office and ask the teacher for help – just say I didn’t understand this very well. It’s not really feasible [now] in these classes.”

Regarding the specificity of STEM content, students discussed how much easier it was to convey their knowledge on papers or essay exams in courses such as literature or political science. One student commented that STEM courses are “more specialized. Other classes like writing can be about different things – but it’s always writing in the same language. Science classes are very specialized.” In discussing instructional pace, students again compared college STEM courses to their high school preparation. Several participants talked about the helpfulness of having more time to take notes when high school teachers would write out each step of a problem on the board. In college, professors tended to use static images in PowerPoint presentations to show a complete solution already worked out. This pedagogical approach limited available notetaking time as well as students’ ability to watch step-by-step as a solution process unfolded.

Impact on Peer Mentors

The MPLTL peer mentors participated in a weekly, one-hour seminar conducted by three of the authors. As they continued learning about UDI and discussing its application to their weekly MPTL sessions, the peer mentors were also guided and supported as they created instructional templates. Peer mentors used the templates during sessions to help students understand
foundational knowledge such as course concepts, formulas, and procedures. The mentors frequently commented on how much they enjoyed creating the templates to address concepts or problem types they had observed students struggling with in MPLTL sessions. All templates were posted on the project’s website so that any student could access that tool at any time. The peer mentors collaborated as a community of practice to make course concepts more accessible to students with a variety of learning and attentional needs.

Formal and observational data also suggest that the additional training for peer mentors in UDI enhanced the PLTL model without fundamentally altering it. The three authors who ran the peer mentors’ seminar, two of whom are experts in PLTL methodology, found that MPLTL sessions essentially unfolded just as PLTL sessions did. Peer mentors covered the same problem sets at the same rate and utilized the same PLTL techniques. The utility of enhancing the PLTL model with UDI was reinforced by comments from peer mentors and students alike. Peer mentors were asked to respond to a five item mid-semester evaluation survey. This brief instrument included the prompt, “I am learning how to apply UDI to my work with MPLTL students.” On a 5-point Likert scale (5 being “Strongly Agree”); the mean score was 4.25 after a month of instruction. One peer mentor’s open-ended comment reflected statements made by several peers in the seminars: “Although UDI principles are valuable to use in MPLTL, I think they are all intrinsic in the PLTL model.” While UDI was developed for faculty use, its utility appears powerful enough apply to peer mentoring models, too. While further research is needed, this study suggests that students with non-apparent disabilities found a more welcoming environment and more effective learning opportunities in PLTL environments that were infused with UDI principles and practices.

Discussion

The results of this demonstration and training project underscore a number of areas that merit further consideration. Additional research involving larger numbers of students is needed to carry out more robust statistical analyses of the quantitative methods piloted in this study. Compared to undergraduates without disabilities, it appears that students with LD and/or ADHD may be at increased academic risk due to curricular aspects of STEM courses and environmental components of large “gateway” lecture courses. Increased efforts that help students identify these risk factors early enough to seek academic supports appear warranted, given project data collected to date. This appears particularly true for students enrolling in gateway chemistry courses. Based on survey and focus group data, these students may experience high degrees of satisfaction with PLTL groups that are led by peer mentors who utilize the Principles of UDI.

In addition, peer mentors appeared to enhance their perceived instructional self-efficacy by creating instructional tools, or “templates,” that directly utilized UDI principles. The written and video templates are widely accessible at www.mpltl.org and create opportunities for additional research. To date, 4752 “hits” have been recorded on the website. The three most popular sections (in descending order) include the Video Templates page (1782 hits), Templates overview page (1580 hits), and the MPLTL Conceptual Framework page (1402 hits). The manner in which students use these templates should be studied to determine their impact on students’ access to course concepts and their use of cognitive strategies to enhance their problem-solving proficiency. Feedback from peer mentors, program administrators, and SWDs provides preliminary evidence that the Principles of UDI hold a clear promise of enhancing access to the PLTL model without fundamentally changing it.

All findings from this project should be considered within the context of several limitations. First, the MPLTL sections were generally smaller than typical PLTL group size (n = 8). As noted, five students signed up for the Chemistry 112 MPLTL and three students signed up for the Calculus 3 MPLTL in Spring 2008. In Fall 2008, nine students participated in MPLTL. Some students participated in more than one group that semester, including five in Chem 112, three in Calc 2, and three in Calc 3. Second, this limited number of participating students restricts the ability to conduct robust statistical analyses of GPA, persistence, and survey data. Third, MPLTL has been offered only to SWDs to date. Other at-risk learners, including students for whom English is not a primary language or who have limited preparation in STEM coursework, may benefit from MPTLT but project activities do not provide data that can inform this question. Finally, more formal measures are needed to understand the extent to which project training enhances the instructional self-efficacy of peer mentors.
Future Directions

In providing MPLTL, the authors have learned more about barriers that can unintentionally limit STEM participation and persistence for SWDs. The authors have begun to explore, through data-based evaluation procedures, minimal adaptations to the PLTL model that hold the promise of providing maximum benefit to diverse learners, including those with disabilities. On the campus where the study took place, information about the use of UDI principles has been infused into PLTL peer leader training. One of the authors is also the Coordinator of the Calculus PLTL program. As she noted:

Working on the MPLTL project enabled me to become more aware of ways in which an instructor or student leader could easily make the learning experience (including space and accessibility of materials) more inclusive while maintaining the core principles of his/her teaching philosophy. During the fall weekly seminar meeting with new PLTL leaders, I introduced the concept of UDI to them as a way to make their group meetings more productive for all students. The students were given a short presentation and then split into groups to discuss various scenarios in which UDI could be applied. This segment of the course will be repeated in fall (L. Kuehne, personal communication, August 19, 2011).

This promising development is a tangible indicator of systems change. Peer mentors who have been trained in the MPLTL project also contribute to systems change by taking UDI knowledge and skills into future PLTL sessions they run and, ultimately, careers that may include university teaching. From its inception, this project has been an active and positive partnership between disability service providers with expertise in LD/ADHD issues and UDI, faculty with expertise in STEM courses, and departmental leaders with expertise in peer mentoring and the PLTL model. A related area for future exploration is the “exporting” of the MPLTL model to other campuses. Colleagues at other institutions of higher education that offer PLTL or similar peer mentoring programs in STEM areas can adapt the project materials available on the www.mpltl.org website. More formally, regional alliances could be organized to share training activities and outcome data across multiple project sites. As the U.S. continues to compete in a global marketplace and UDI broadens educational access to a wider range of learners, the MPLTL project offers the seeds of new approaches to enhancing students’ success in STEM majors and careers.

References


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Larry Handlin received his BA in political science from Cornell College and a MA in political science from Washington University in St. Louis. Mr. Handlin has previously worked as a Senior Research Specialist focusing on evaluation of local governments and nonprofits. His work there focused primarily on early childhood education and housing programs. Mr. Handlin is the Assistant Director of Evaluation for Cornerstone: The Center for Advanced Learning, where he evaluates the effectiveness of Cornerstone’s programs and utilizes the results of those evaluations with Cornerstone staff and collaborators to improve program effectiveness. He can be reached at larryhandlin@wustl.edu.
Faculty Perspectives on Professional Development to Improve Efficacy When Teaching Students with Disabilities

Hye Jin Park
Kelly D. Roberts
Robert Stodden
University of Hawai`i at Manoa

Abstract

Innovative and Sustainable Teaching Methods and Strategies project staff provided professional development to instructional faculty to enhance their attitudes, knowledge, and skills in meeting the diverse needs of students with disabilities. This practice brief describes one of the professional development programs, delivered over the course of a three-day Summer Institute, its outcomes and challenges as reported by participating faculty, and implications for further research and practice.

Keywords: Professional development, perceived impacts of professional development by faculty, postsecondary education, students with disabilities

Literature Review

In the U.S., students with disabilities (SWD) are participating in postsecondary education in increasing numbers. Between 1978 and 2008, enrollment of SWD in U.S. colleges and universities grew from 2.6% to 10.8% (National Center for Education Statistics [NCES], 2009). Also, four out of five secondary school SWD indicate postsecondary education as their goal after high school (Newman, Wagner, Cameto, & Knokey, 2009). However, SWD still attend postsecondary education at a lower rate than students without disabilities (Getzel & Wehman, 2005). Moreover, SWD in postsecondary educational settings face significant limits in accessibility to educational services and opportunities. As a result, SWD have lower persistence (i.e., having obtained a degree or still enrolled) and graduation rates than students without disabilities (Berkner, Curraro-Alamin, McCormick, & Bobbit, 1996; Post-outcomes Network of the National Center on Secondary Education and Transition, 2002). SWD drop out of postsecondary education at a higher rate than students without disabilities (Murray, Goldstein, Nourse, & Edgar, 2000), and those who do graduate take longer to complete their degree programs when compared to students without disabilities (Brinckerhoff, McGuire, & Shaw 2002). NCES (2006) reported that only 16% of SWD compared to 27% of those without disabilities were enrolled in a 4-year institution of higher education and attained a bachelor’s degree in five years.

Problem

One of the primary challenges SWD face in postsecondary education is insufficient support from faculty (National Council on Disability, 2003). The availability of appropriate support and accommodations as well as the presence of positive attitudes among faculty are directly related to the success and retention of SWD in higher education (Rao, 2004; Stodden, Jones, & Chang 2002). However, only 62% of postsecondary institutions provided faculty and staff handbooks designed to assist them in working with SWD, and only 64% of those institutions provided faculty with information and resources to increase their knowledge of working with SWD (NCES, 2009).

Although having a supportive and positive faculty-student relationship is a prime gauge for the
success of SWD in a postsecondary environment, faculty members are often ill equipped to create these relationships (Salzberg et al., 2002; West et al., 1993). Faculty attitudes towards and misconceptions about the characteristics and needs of SWD hinder student disclosure of disabilities and requests for accommodations to which SWD are entitled (Dowrick, Anderson, Heyer, & Acosta, 2005; Johnson, 2006). Moreover, faculty continue to lack requisite knowledge and skills needed to provide appropriate and reasonable accommodations to SWD. Studies have shown that faculty possess insufficient knowledge about federal law and their legal obligations pertaining to SWD in higher education settings (Burgstahler, Duclos, & Turcotte, 2000; Vasek, 2005). Although faculty perceive knowledge of Universal Design for Instruction (UDI) as an area of high importance, they also appraise this knowledge domain as an area of weakness among postsecondary faculty (Cook, Rumrill, & Tankersly, 2009). As the number of SWD in postsecondary education increases, faculty face greater demands to provide support to these students. Thus, there is a clear need to develop and improve the attitude, knowledge, and skills of postsecondary faculty in the context of educating and supporting SWD.

Faculty and Location Information

This practice brief describes a faculty professional development (PD) program that staff from the Center on Disability Studies at University of Hawaii at Manoa (CDS-UHM) conducted as part of an Office of Postsecondary Education funded project entitled, Innovative and Sustainable Teaching Methods and Strategies to Ensure Students with Disabilities Receive a Quality Higher Education (IST). The U.S. Department of Education’s Office of Postsecondary Education funded the IST project from 2005 to 2008. The overarching goal of the IST project was to increase the retention and completion rates of SWD in postsecondary education through the provision of PD to instructional faculty. The purpose of the PD was to enhance faculty competence in meeting the diverse needs of SWD pursuing higher education and to encourage faculty development of positive attitudes towards SWD as valued learners. The primary target for the PD was faculty within the UH system, which includes three universities and seven community colleges. Project staff also provided PD to individuals from the Pacific Rim region, U.S. mainland, and other countries through face-to-face workshops and online webinars.

This practice brief describes the content and strategies covered in the Summer Institute on Leadership in Disability and Diversity (Summer Institute), outcomes identified by faculty interviews during the follow-up case studies, and implications for research and practice. Sixteen participants were recruited for the Summer Institute through campus-wide advertisements and in collaboration with the Center for Teaching Excellence at UHM. The Summer Institute was conducted by IST project staff from CDS-UHM over three consecutive days at the UHM. After the Summer Institute, follow-up case studies were conducted during the fall semester with seven volunteer faculty members. The intent was to evaluate (a) how and/or if the instructional faculty participants implemented what they learned from the Summer Institute and (b) how well the instructional faculty participants retained the attitudinal and knowledge changes they acquired from the Summer Institute over the following semester. Although multiple data collection methods (e.g., faculty pre-post interviews, student pre-post surveys, class observations, syllabi review, and student academic record analyses) were used in the follow-up studies, this practice brief focuses on faculty interviews to highlight the faculty perspective of the effects of the Summer Institute PD. The characteristics of the follow-up study participants are described in Table 1; the faculty pre- and post-interview questions are presented in Table 2.

Strategy

The Summer Institute was held for three days at the UHM. The institute was designed to provide participants an opportunity to expand their understanding and skills in the areas of (a) disability culture, (b) student and faculty rights and responsibilities, (c) accessible distance education and assistive technology, (d) UDI, (e) hidden disabilities, and (f) multiculturalism and disability. The curriculum across these focal areas was delivered through presentations by expert practitioners, through dialogue with support service provider and student panels, and through participants’ creation of a culminating project. All three PD days included opportunities for participant reflection, guided discussion, and collaborative work. Through an expansion of faculty knowledge and skills across these focal areas, and through faculty application of new knowledge and skills in a culminating project, it was believed that the PD would positively impact faculty attitudes, competence, and self-efficacy in meeting the
Table 1

Characteristics of the Faculty Participants of the Summer Institute Follow-up Study

<table>
<thead>
<tr>
<th>Name</th>
<th>Gender</th>
<th>College</th>
<th>Experience in Meeting SWD’s Needs Before the PD</th>
<th>Change in Competence in Meeting SWD’s Needs After the PD</th>
<th>Change in Familiarity with Accommodation After the PD</th>
<th>Change in Professional Skills in Instructing SWD After the PD</th>
<th>Change in Knowledge After the PD</th>
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<tbody>
<tr>
<td>G</td>
<td>F</td>
<td>Social Sciences</td>
<td>Few</td>
<td>+ Excellent</td>
<td>+ Excellent</td>
<td>0 Good</td>
<td>+</td>
</tr>
<tr>
<td>J</td>
<td>M</td>
<td>Social Sciences</td>
<td>Many</td>
<td>0 Fair</td>
<td>0 Fair</td>
<td>Fair</td>
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<td>Few</td>
<td>0 Good</td>
<td>0 Good</td>
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<td>+ Good</td>
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<td>+</td>
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<td>O</td>
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<td>Few</td>
<td>+ Good</td>
<td>0 Fair</td>
<td>0 Fair</td>
<td>+</td>
</tr>
</tbody>
</table>

Note. The criteria used to categorize the faculty by their previous experience with SWD are (1) the number of SWD one has worked with and (2) the number of accommodations one has provided to SWD. Change in competence, familiarity with accommodations, and professional skills were assessed by comparing participants’ pre-post survey responses, in which participants self-rated their levels using a four-point scale: Excellent, Good, Fair, and Poor. “+” indicates increase after the PD; “0,” no change after the PD; and “-,” decrease after the PD. * indicates the faculty scored 100% correct on both the pre- and post-survey knowledge assessment, so there was no change.

diverse academic support needs of SWD in their own classrooms and academic communities. A description of the enacted curriculum is detailed below.

Day 1

(1) The first day of the PD explored disability culture, student and faculty rights and responsibilities, and accessible distance education and assistive technology. The curriculum on disability culture utilized poetry and powerful vignettes to engage participants’ reflection on individuals with disabilities’ shared history of oppression and resilience. Specifically, the curriculum honored the experience of disability as a part of individuals’ identities and provided an alternative model through which participants might understand student and faculty rights and responsibilities in higher education.

(2) The second module, student and faculty rights and responsibilities, began by locating disability within the framework of diversity. The presenter introduced the social model of disability and offered participants an opportunity to reflect on the physical and attitudinal barriers to full participation in higher education. The module reviewed disability rights laws relevant to higher education and situated the provision of reasonable accommodations within federal mandates for equal opportunities for SWD participation in higher education.
The accessible distance education and assistive technology focal areas introduced case studies of four students with disabilities participating in online courses. Through an exploration of these case studies, the module highlighted laws specific to online course offerings and explored high- and low-tech solutions enabling equitable online communications and access. At the close of the presentation, participants discussed the relevance of accessible distance education in their own educational practice.

Day 2

Day 2 of the institute explored UDI, included dialogue with the support service provider and student panels, guided discussion, and group work towards a culminating project. The UDI curriculum highlighted the guiding principles of UDI (Scott, McGuire, & Shaw, 2001) and shared procedures consistent with UDI that are supported by research. To facilitate participants’ future use of UDI, the curriculum included links to UDI resources and examples of graphic organizers and guided notes that can be easily adapted for novel contexts. The UDI focal area concluded with a cautionary reminder that UDI does not replace or diminish SWD’s legal entitlement to reasonable accommodations.

Day 3

Day 3 of the institute began with inquiry into the hidden disabilities focal area. Participants gained insight into the nature, prevalence, and manifestations of the most common hidden disabilities among adolescent and adult populations (i.e., LD, ADHD, psychiatric disorders). The curriculum directly addressed myths and prejudicial attitudes towards highly stigmatized hidden disabilities (e.g., psychiatric and learning) and prompted participants to consider how prejudicial attitudes effectively undermine the Americans with Disabilities Act. Participants explored educational barriers affecting students with hidden disabilities in tandem with practical solutions and recommended educational supports.

Throughout the three-day institute, time was allotted for group work on a culminating project. The culminating project provided an opportunity for participants to apply, integrate, and synthesize gains in knowledge and skills across the focal areas and engage with peers in communities of practice. Examples of projects included: a draft series of steps needed to maximize the accessibility of an online course, a written case study that proposes solutions to real problems encountered by SWD, and a draft department policy that details actions that can improve the retention and success of SWD.

Observed Outcomes

The qualitative data analysis of the faculty interviews revealed both positive outcomes and challenges. All faculty participants responded that, during the fall semester following the Summer Institute, they worked proactively with their campus student disability services office to provide reasonable accommodations for SWD, sought to make course materials more available and accessible for students, and presented information that they learned from the Summer Institute through multiple means to other faculty. When evaluating the strategies faculty participants most frequently implemented in their classrooms, three clear themes emerged: (1) providing reasonable accommodations; (2) applying UDI strategies (e.g., use of graphic organizers, providing lecture notes, use of the pause procedure, reading written course content aloud, creating communities of learners, and providing course materials in pdf formats that can be easily enlarged); and (3) enacting syllabus modifications (e.g., including a more welcoming accessibility statement). Additionally, some faculty participants became active agents of change beyond their own classrooms, advocating for systems change within larger academic contexts. The interviews also showed a positive effect of the Summer Institute on the faculty’s self-efficacy in working with SWD, which can affect their efforts and persistence when encountering obstacles (Bandura, 1977). For instance, a female faculty described moving from feelings of uncertainty towards feelings of competence and a willingness to provide reasonable accommodations to SWD. She said, “Now it’s like, ‘Okay, let’s talk about what we can do.’” A male faculty reported feeling “more up to the challenge” of pursuing live closed captioning, despite financial and institutional barriers.

The faculty also discussed challenges they have experienced in implementing the strategies from the Summer Institute. They identified technical challenges and institutional barriers to the provision of reasonable accommodations and faculty’s use of UDI strategies in their classes. For example, one faculty described being placed on a waiting list for a media-equipped
Table 2

Faculty Pre- and Post-Interview Questions

**Faculty Pre-Interview Questions**

1. What motivated you to participate in the summer institute and this follow-up study?
2. What were the most useful and meaningful gains from the training program?
3. How are you planning to apply your learning from the summer institute to your classes this semester?
4. What kinds of services or accommodations are you planning to provide if you have students with disabilities in your class?
5. What do you expect your students with and without disabilities to achieve from your classes?

**Faculty Post-Interview Questions**

1. How well did you achieve your plan to apply the learning from the summer institute to your class?
2. What is your greatest achievement? Please provide episode(s) or example(s).
3. What challenged you in your practice of UDI strategies and assistive technology?
4. What helped you in your practice of UDI strategies and assistive technology?
5. What kinds of services or accommodations did you provide to students with disabilities and diverse needs? Please provide examples of special needs and accommodations provided.
6. How did students with and without disabilities in your classes meet your expectations?
7. After this semester, did you come to feel more comfortable in addressing the needs of students with disabilities and other diverse learners? If yes, to what degree?
8. How do you evaluate your current professional skills to address the needs of students with disabilities and other diverse learners?
9. Were your attitudes toward the UDI strategies and assistive technology changed after this semester? Why or why not?
10. Could you have done more for students with disabilities and diverse needs? If yes, what more could you have done?
classroom while another faculty explained that in the absence of institutional support for UDI, he had to pay for close captioning of distance education courses out of pocket. Thus, the faculty members perceived that continued direct support, technical assistance, and provision of more resources are needed to fully actualize the strategies they acquired from the Summer Institute in the classrooms.

Implications

The qualitative analysis of faculty interviews indicated that, from the participating faculty perspective, the Summer Institute did increase faculty competence, self-efficacy, and positive attitudes in meeting the academic support needs of SWD during the semester following the Summer Institute. The findings imply that the short-term effects of a faculty PD can be sustained over time, and that trained faculty will implement PD strategies in their instruction to some degree. Given little research linking disability-focused training to changes in faculty attitudes and perceptions (Murray, Lombardi, Wren, & Keyes, 2009), this study contributes to advancing the research base on this topic.

A notable finding of this study is that, despite insufficient institutional support, the faculty participants expressed increased commitment to the goal of reasonable and effective accommodations for SWD and created their own learning communities through which they advocated for system change within larger academic contexts. For instance, one faculty participant persuaded colleagues to revise a virtual class to support students with visual and hearing impairments. Another participant began seeking funding opportunities to help campus instructional technology experts learn and then support faculty members’ use of high-tech UDI strategies. When combined with ongoing direct support, technical assistance, and resources, creating faculty learning communities may promise to be a natural means to further develop faculty motivation and efficacy expectations, sustain improved attitudes and skills through PD, and promote practices supporting SWD’s retention and success in postsecondary education.

Limitations

Because the data source of this practice brief is interview data from a small sample of instructional faculty, the results are not generalizable. Additionally, the follow-up study, presented in this practice brief, focused only on faculty perception. To determine longer-term impacts of faculty PD it is recommended that additional follow-up occur with more faculty PD participants and with the use of additional data sources.

References


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The *Journal of Postsecondary Education and Disability* welcomes submissions of innovative and scholarly manuscripts relevant to the issues and practices of educating students with disabilities in postsecondary educational programs. Manuscripts must be submitted electronically via email to jped@ahead.org. For responses to frequently asked questions about APA style, consult the APA web site: http://www.apastyle.org/faqs.html.

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